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

224 New Customhouse
Denver 2, Colorado

June 23, 1953.

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2765 (Uranium), Shattuck Denn Mining Corporation, McKinley County, New Mexico.

Enclosed are the original and three copies of the report pertaining to the above application.

We recommend exploration aid based on a short form contract to allow for the work to be done in two stages. Stage I to consist of a maximum of 12,190 feet of drilling at a cost not to exceed $31,693.00. Stage II to be contingent upon the results of Stage I and to consist of drifting and crosscutting.

W. H. King
W. H. King

E. N. Hershman
E. N. Hershman
For A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-1-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

June 23, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2765 (Uranium), Shattuck Dome Mining Corp., McKinley County, New Mexico.

Enclosed are eleven copies of the final engineering report on the subject docket.

The applicant originally requested $197,851.00 and later revised it to $[illegible],870.00 to core drill, drift and crosscut.

The examining engineer recommends a maximum of $121,503.00 to explore in two stages. Stage I to consist of drilling 12,190 feet at a total cost of $19,503.00. Stage II to be contingent upon the results of Stage I and to consist of drifting and crosscutting a maximum of 3,400 feet at a total cost of $102,000.00.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-1-53
(date)

MINING DIVISION
REGION IV

June 19, 1953

Memorandum

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

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Report on Docket DMEA-2765, Shattuck Denn Mining Corp.'s Uranium Claims, McKinley County, N. Mex.

Enclosed are original and 10 copies of an Engineering Report on the above property by L. L. Farnham of the Bureau of Mines. A Geological Report already has been submitted by the Geological Survey.

As there seems to be a very good chance of discovering a substantial amount of uranium ore by this exploratory work, the examiners recommend that a loan be granted the Shattuck Denn Mining Corp. I concur with their recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. A. King (10)
R. F. Robinson
DMEA02765
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE

7-1-53
(date)

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

June 15, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2765, Shattuck Denn Mining Corporation, Garcia and Blue Peak Groups, McKinley County, New Mexico. Uranium.

Enclosed are the original and 10 copies of the geologic report by A. F. Shride of the U. S. Geological Survey covering the above docket.

It has been recommended that the loan be approved.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

Reviewed by
DMEA OPERATING COMMITTEE
7-1-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O.Box 4126, University Station
Tucson 5, Arizona

June 12, 1953

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: Raymond F. Robinson, Tucson, Arizona

Subject: Geologic Report, DMEA 2765, Shattuck Denn Mining Corp., Garcia and Blue Peak Groups, McKinley County, New Mexico (Uranium)

Enclosed are the original and 10 copies of the above report by A. F. Shride of the Geological Survey. Geological Survey personnel were responsible for the favorable recommendation of exploration. Bureau personnel did not participate in the examination, but did enter into discussions of costs and methods with the applicant's agent, which is about all that can be done for an engineering report. As this report was going out, we heard that the Bureau's report was returned for physical examination of the property by Bureau personnel. Therefore, we are holding the brochure and supplemental data for use of the Bureau in preparing their report.

It may take some time to get subordination agreements. Therefore, if the Field Team is agreeably disposed toward the recommended exploration, it is suggested that 3 sets of subordination forms be forwarded at an early date to the attorney for the applicant:

Mr. Charles E. McDaniel
P. O. Box 553
Prescott, Arizona

No forms are available in this office. We understand that the applicant prefers that Mr. McDaniel handle legal aspects of this application - rather than the New York office of the Shattuck Denn Corporation, as suggested in Mr. Johnson's letter.

Raymond F. Robinson

Raymond F. Robinson
Acting District Supervisor
Arizona-New Mexico

Reviewed by
DMEA OPERATING COMMITTEE
7-1-53
(date)

Enclosures 11

GARCIA AND BLUE PEAK GROUPS
SHATTUCK DENN MINING CORPORATION
MCKINLEY COUNTY, NEW MEXICO
DMEA 2765

URANIUM

Geology

By
A. F. Shride
Geologist, U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE

7-1-53
(date)

GARCIA AND BLUE PEAK GROUPS
SHATTUCK DENN MINING CORPORATION
MCKINLEY COUNTY, NEW MEXICO
DMEA 2765

URANIUM

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Figure 1 - Claim Map of Section 24, T. 13 N., R. 10 W., Showing Tentative Location of Proposed Drilling, DMEA 2765	2

INTRODUCTION

The area in Section 24, T. 13 N., R. 10 W., McKinley County, New Mexico, proposed for exploration by the Shattuck Denn Mining Corporation appears to be worthwhile for Defense Minerals Exploration Administration loan participation. However, the original plan of exploration is not warranted on the basis of available information. Discussion on the site and correspondence with members of the Grants, New Mexico Atomic Energy Commission staff indicates that this would also be the opinion of that group. In light of the concurrence by the examiners (A. F. Shride and R. B. Raup of the Geological Survey) and the Grants A.E.C. staff lengthy discussions of the various aspects of an exploration program were made with Mr. T. W. Newell, Assistant Vice-President of the Corporation. As a result of these discussions and further correspondence a revised proposal was presented by the Shattuck Denn Mining Corporation. This proposal, which requests a loan on a short form contract, was far from complete or satisfactory, therefore further discussions were held in an attempt to get adequate data. Plans by the Corporation for the mechanical aspects of exploration, sampling, mapping, collecting of drill data, and financing of the applicant's share of the costs, etc. were incompletely formulated. In addition, data as to ownership of the properties were incompletely explained. As a result this application has been extremely difficult to process. Because of the applicant's inability to present a complete program, it has been necessary to put together details of an exploration program from discussion with the applicant's agent and to tie loose details together without benefit of more than a generalized concurrence by the applicant.

GEOLOGY

Stratigraphy and Structure

Carnotite-type uranium ores in the Garcia-Blue Peak properties occur in sandstone of the Brushy Basin shale member of the Morrison formation. Stratigraphy pertinent to this application can be summarized as follows:

Formation	Thickness in Feet
Dakota sandstone	80-100
Morrison formation	
Brushy Basin shale member (bentonic mudstone portion)	65
Brushy Basin shale member (?) (sandstone portion)	50±
Westwater Canyon sandstone	20±
Total thickness of pertinent stratigraphic units	215-235 feet
Recapture shale member	?

The above data was furnished by the Grants office of the A.E.C. and is believed to be the most reliable information available. It should be noted that the applicant believes the stratigraphic section above the Recapture shale member to total 250-265 feet in thickness.

The formations are essentially flat-lying; the formations strike N. 70° W. and dip 4° N.E. in the area proposed for exploration.

The Dakota sandstone over approximately the NE¼ of Section 24 outcrops as a flat-topped mesa. Along a line approximately parallel to the north boundary of the Garcia No. 1 claim (see fig. 1) the Dakota sandstone crops out as a south-facing escarpment; to the northwest of the Garcia No. 2 claim the escarpment trends northwest. The outcrop patterns of lower formations parallel this outline. The upper part of the Brushy Basin shale member, which is a greenish-gray bentonitic mudstone, crops

out as a slope at the base of this escarpment. The uranium occurs in the lower sandstone part of the Brushy Basin shale member (?) - perhaps this sandstone is the upper part of the Westwater Canyon sandstone. The sandstone portion of the Brushy Basin member and the part of the Westwater sandstone immediately above the Recapture shale member crop out as prominent ledges, which are in part obscured by debris from the upper part of the Brushy Basin member and the Dakota sandstone.

Uranium

Uranium ores have been mined on the Garcia No. 1 claim through a thickness of approximately 20 feet of the upper part of the sandstone of the lower member of the Brushy Basin shale member. Approximately 1000 feet of adits and drifts and adjacent small stopes (see fig. 1) expose the ore shoots on the Garcia No. 1 claim. T. W. Newell stated that wagon-drilling indicated uranium in minable quantities in the sandstones below the adit level; however, no data were kept as to location or depth of drill holes, thickness of uranium-bearing material, or uranium content of the wagon-drill cuttings.

The habit of uranium distribution in the Brushy Basin shale member is poorly understood. At present, it is assumed by the applicant that an east-west set of high-angle joints, which approximately parallels the outcrop, controlled the concentration of uranium minerals. A 20-30 foot wide uranium concentration at the original outcrop - now completely quarried away - is said by Mr. Newell to have followed such a joint set and the outlines of the present stope suggest an alignment of ore shoots along a joint set. However, the spatial relation of the known ore shoots to the jointing may be fortuitous. It is worth noting that joint patterns

have not been traced along the outcrop to determine whether or not like joints may project into the area proposed for exploration. A very detailed study would be necessary to determine the significance of the known joints, and if joints are significant, it would be difficult to distinguish parallel sets, in the incompletely exposed outcrop, that might project into the area to be explored.

The uranium-bearing sandstone unit is composed predominately of lenticular masses of cross-bedded sandstone. Bordering parts of these lenses or as adjacent small lenses or "pockets" are mudstones much like the bentonitic mudstones of the upper part of the Brushy Basin member. These mudstones comprise a relatively small amount of the sandstone unit. It may be significant that concentrations of uranium occur in the sandstone lenses at or near the boundary of the sandstone lenses and the intercalated mudstones. It is entirely possible that distribution of the uranium ore shoots is related to these variations in lithology rather than to joint sets.

No assay data are available on which to base appraisal of the Shattuck Denn uranium deposit. However, the deposit can be judged from stope outlines and the past production record. No records have been kept of the production of the various stoped areas. Undoubtedly a large part of the ore was derived from the original outcrop which is now stripped away. The ore shoots, judging from stope outlines range from 2 to 11 feet in thickness, are 10 to 30 feet in width, and 30 to 100 feet in length. Between June, 1952 and February, 1953, the Shattuck Denn Mining Corporation shipped 45 lots of ore totaling 4062.24 tons. These lots, which ranged from 23 to 170 tons in amount, contained .07 to 0.45 percent U_3O_8.

$= 13,000 \text{ lbs } U_3O_8 \times \$2.70 = \$35,100$

A weighted average of the 4062 tons produced by the applicant indicates an average content of 0.16+ percent U_3O_8. The ore mined in the past year has probably been downgraded because of dilution due to the applicant's attempt at large scale operation methods. Vanadium content is recorded for 31 lots of ore totaling 3066 tons. $= 4,906 \text{ lbs } V_2O_5$ The average V_2O_5 content of this tonnage is 0.08+ percent. On the basis of past production the ore bodies sought by the proposed exploration might be expected to have an average content of 0.2 percent U_3O_8 $= \$14/\text{ton}$ and 0.08 percent V_2O_8.

Traverses with a geiger counter and a scintillation counter indicate that the stope outlines generalized on figure 1 outline the areas of significant radioactivity. Large portions of the adits shown without drifts on figure 1 show insignificant radioactivity. Radioactive outcrops were noted by the examiners along approximately 3000 feet of the exposed portion of the Brushy Basin member.

BASES FOR EXPLORATION IN THE AREA

The applicant hopes that the proposed exploration will result in the finding of ore or more zones of uranium-bearing sandstone 3 to 15 feet thick and of sufficient lateral extent to provide 200,000 to 250,000 tons of material with an average U_3O_8 content of 0.07 to 0.10 percent. This low-grade material would be available for mining, according to the applicant, because the Shattuck Denn Mining Corporation could then enter into a contract with the A.E.C. to build a plant to concentrate the ores to a grade of 0.25 percent. The applicant expects to be able by the use of Diesel equipment to use large scale, compared to the present scale, room and pillar methods of mining. An attempt by the applicant to do this scale of mining, since taking control of the property in April, 1952

has apparently resulted in considerable dilution of the available ore with the result that a few carload shipments have not been accepted by the A. E. C. In general the grade of the ore shipped has been lower than the average grade of ore shipped from the same property by the applicant's predecessor.

The writer is not favorably impressed by the applicant's expectations of one or more large low-grade ore-bodies, but believes that exploration should be directed toward the discovery of small ore-bodies of a few thousand tons each and of a grade on the order of, or possibly exceeding, 0.2 percent U_3O_8 comparable to those available in the past.

The Shattuck Denn uranium deposit is typical of the sandstone deposits of the Colorado Plateau. For this particular area geologic work has not been done on which to predicate sites for further exploration. However, in view of the past production of 6000 tons of material of approximately 0.2 percent U_3O_8 content, and of numerous occurrences in the surrounding area of minable uranium in adjacent formations, exploration of the area shown on figure 1 for extensions of the mineralized area appears warranted. Other minable occurrences in the Grants area are not known in the sandstone portion of the Brushy Basin member. However, significant occurrences of uranium are known in the Westwater Canyon member; Santa Fe's Poison Canyon deposit 1 1/2 miles to the southeast is a notable example. Therefore, as requested by the applicant, drilling to the top of the Recapture shale should be favorably considered. The fact that in the surrounding areas other significant deposits are not known in the Brushy Basin member should not be considered unfavorable. It is the writer's understanding that, during the short history of uranium

production in the Grants area, this portion of the stratigraphic column has not received as much attention of operators and prospectors as the lower stratigraphic units.

EXPLORATION PLAN

The original application requested financial aid for 5550 feet of adits and drifts. Such drifting into untested areas without knowledge of the position of targets is completely unwarranted. The applicant has now revised the exploration program so that a maximum of 12,190 feet of drilling will be completed or almost completed before a maximum of 3400 feet of drifting is contemplated. The applicant has complete confidence that drifting alone would be feasible exploration. From the available data this confidence is not warranted. and how A firm statement has been made by T. W. Newell to the effect that <u>if drifting is not included with drilling the Shattuck Denn Mining Corporation is not interested in a DMEA contract</u>. The Corporation is now in agreement that drifting should not be started until drilling indicates a target. Conceivably a sufficient target would be determined to start drifting prior to the end of the drilling program. More probably the possibilities for drifting will necessarily be evaluated at the end of the drilling program. The corporation wishes sufficient funds for a maximum of 3400 feet of drifting. Because of the habit of Colorado Plateau type uranium deposits, it seems unlikely that this amount of drifting will be required. However, a maximum of 3400 feet of drifting can be allowed under a DMEA contract with the understanding that drifting will not be done unless specific targets are indicated by Stage 1 drilling.

<u>Stage 1 - Drilling</u>

The revised exploration program contemplated drilling 36 holes on a 200-foot grid pattern north of the present mine workings. Promising

holes in this grid are to be bracketed by holes at intervals of 50 to 100 feet. Footage for 10 additional holes is allowed for offset holes. The drill hole layout as presented by the applicant included only 33 holes spaced at 275 foot intervals. Mr. Newell has indicated that this was an error, and figure 1 shows the intended pattern of the grid. The first drill holes are to be 200 feet north of the mine faces existing at the time the contract is started. The holes could just as well be drilled on an east-west grid to cover the southern parts of the Blue Peak Nos. 1 and 2 claims or northwest from the workings on a grid parallel to the cliff of Dakota sandstone. The grid pattern shown on figure 1 is only tentative.

The applicant estimated that the depth of the average hole would be 250 to 265 feet, therefore footage for the 46 holes is estimated on the basis of 265 feet per hole. On the basis of A.E.C. data a total of only 10,000 to 11,000 feet of drilling may be required to complete 46 holes.

At an early stage of the discussions the applicant submitted an estimate for diamond drilling in which the costs were excessive. Later a bid by the W. T. Myers Drilling Company for coring of the ore-bearing sandstone by rotary drill was considered by the applicant. Drilling by this method would allow completion of Stage 1 at a fraction of the cost of diamond drilling. However, because of unfamiliarity with the method, the applicant was reluctant to accept this method of drilling. More recent inquiry by the writer and other Tucson Geological Survey and Bureau of Mines personnel, in connection with other uranium applications, has indicated that rotary drilling is entirely feasible and that diamond drilling should no longer be considered. The writer doubts that the

sandstone of the Brushy Basin member is well enough cemented to allow good core recovery, especially through the minor mudstone lenses - where concentrations of uranium are likely to occur.

The applicant planned to core the uranium bearing sandstones, but made no provisions for assaying the cores. Our inquiry has determined that it is probably more feasible to sample cuttings rather than cores from the rotary drilling. If cores are not taken, an appreciable saving in drilling costs will be made. In conversation with T. W. Newell on June 4, 1953, it was decided that the most feasible method of the collecting of samples will be determined by trial. Therefore, maximum cost estimates are set up in the engineering report on the basis of possible core drilling. From the information available, samples of cuttings should be adequate for purposes of Stage 1.

Drifting

If Stage 1 drilling indicates areas of uranium mineralization in which uranium content and quantity should be substantiated by drifting, Stage 2 should be put in effect. The Shattuck Denn Mining Corporation would prefer to start drifting at the beginning of the drilling campaign. Because targets are not known, such drifting should not be allowed. After targets are established, continuation of present adits from one or more headings, new adits from one or more sites, or drifts or cross-cuts from one or more adits may be feasible. Some control should be exercised by the Government to insure that targets suggested by drilling are investigated via the shortest possible line of access. Otherwise the applicant may attempt to do development work using Government funds.

Sampling

Mr. Newell during early discussions wished to do no sampling, either of drill core or drift faces. Instead he proposed that cores and mine faces be checked only with a geiger counter and judged by the counter operator as to uranium content. No records would have been kept of geiger readings. This practice in the present mining operation has proven inadequate. The applicant has had several lots of ore rejected because of low uranium content and has paid royalties on material later shown not to be ore.

a

As finally agreed, the applicant will make core or cuttings from the stratigraphic units favorable to uranium investigation with a geiger counter, and samples that show significant radioactivity will be assayed. As the applicant is reluctant to do any assaying or recording, the contract should emphasize that adequate assay data be kept. It is reasonably expectable that the A.E.C. will log the drill holes for radioactivity; this information will aid in evaluation.

The applicant would make no definite statement concerning sampling and assaying from the drifts. Exposures sufficiently radioactive should be sampled at regular intervals, and the contract should so state. The strata above and below the drifts are to be tested by jackhammer holes or wagon drill; for this work adequate data should also be kept.

Could give date of [illegible]

A part of the recording of data will be the compilation of maps. The applicant is also reluctant to do this, and the contract should specifically emphasize this some place other than in Article 5 of Form MF-200(A).

MISCELLANEOUS INFORMATION

The Bureau of Land Management has informed us that the NW$\frac{1}{4}$, Section 24 is under oil and gas lease NM 05217, issued August 1, 1951, to T. O. Palmer. The effect of this lease on a possible contract is not understood by the writer. However, only a very small part of the exploration area is in the NW$\frac{1}{4}$ of Section 24; therefore, it would not be essential to the exploration that any part of the NW$\frac{1}{4}$ be subordinated.

It has not been possible to find out whether the Hyde claims (see figure 1), which are not controlled by the applicant, or the overlapping Blue Peak claims have priority. The applicant states that the Hyde claims have been allowed to lapse, but this has not been verified. Because a canyon makes drilling on most of the Hyde claims impractical for this exploration program, the writer would recommend that the area covered by the Hyde claims be omitted from the area for exploration.

CONCLUSIONS

Because of the several deposits of similar association in the vicinity of the area proposed for exploration and because of the uranium production record from the Garcia claims, it is believed that exploration is warranted. The applicant's original exploration proposal is not warranted, but the revised program can be accepted. Particular emphasis should be placed on preservation of the data available from the exploration work.

DMEA-2765, SHATTUCK-DENN MINING CORPORATION'S URANIUM CLAIMS
McKINLEY COUNTY, NEW MEXICO

Engineering Report

By L. L. Farnham
Mining Engineer
U. S. Bureau of Mines

June 1953

Reviewed by
DMEA OPERATING COMMITTEE
7-1-53
(date)

DMEA-2765, SHATTUCK-DENN MINING CORPORATION'S URANIUM CLAIMS

McKINLEY COUNTY, NEW MEXICO

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Ore reserves	3
Present status	4
Proposed exploration	4
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ILLUSTRATIONS

(Included in geologic report.)

INTRODUCTION

In November 1952, the Shattuck Denn Mining Corp. applied to the Defense Minerals Exploration Administration under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $197,851.43. The application was docketed as DMEA-2765. The funds requested were for the purpose of exploring a uranium deposit by means of 5,500 feet of drifting and crosscutting. The property was visited by examiners of the Geological Survey late in January 1953. At that time it was suggested to the applicant that the original application should be amended whereby some preliminary core drilling should precede the underground work. Consequently a revised application was submitted to the Tucson office on April 3, 1953. This new proposal, involving 9,470 feet of core drilling and 3,400 feet of drifting and crosscutting, was estimated by the applicant to cost a total of $220,870.

The Bureau of Mines examiner visited this property on June 16, 1953.

LOCATION AND ACCESSIBILITY

The property is situated northwest of the town of Grants and covers a large portion of sec. 24, T. 13 N., R. 10 W., McKinley County, N. Mex. It is accessible from Grants over 16 miles of road, the most of which is unimproved.

HISTORY AND PRODUCTION

The claims were probably located at some time subsequent to 1950 when the presence of uranium was first detected in the Grants area. The original operators, known as the Blue Peak Mining Co., exploited the outcrop of the deposit, and are reported to have produced about 3,000 tons of ore containing some 0.2 percent U_3O_8. The applicant corporation acquired the property in April 1952 and between that time and March 1, 1953, has produced 4,062 tons averaging about 0.16 percent U_3O_8. Thus the total production of the deposit, including the first 2 months of 1953, has amounted to approximately 7,000tons containing about 0.18 percent U_3O_8 and 0.09 percent V_2O_5. The ore was sold to The Anaconda Copper Mining Co.'s receiving station at Bluewater, N. Mex.

The property was not active when visited in June 1953.

OWNERSHIP AND EXTENT

The Shattuck Denn Mining Corp. has a lease and options on 4 contiguous groups containing a total of 27 unpatented lode claims. The life and terms of the different options are not known as this office does not have copies of the lease agreements.

The Bureau of Land Management at Santa Fe, N. Mex. reports that the NW$\frac{1}{4}$ of sec. 24, T. 13 N., R. 10 W. is covered by an oil and gas lease (NM 05217) issued August 1, 1951 to T. O. Palmer. This oil and gas lease covers a portion of the applicant's claims. However, it is not known whether or not the mining claim locations have priority over the oil and gas lease.

DESCRIPTION OF THE DEPOSIT

The uranium mineralization on the Shattuck Denn property occurs in a sandstone member of the upper Morrison formation. The mineralized bed ranges from 20 to 30 feet thick and lies almost horizontal. The ore bodies, containing from a few tons to several hundred tons, are lenticular pods distributed sporadically within the sandstone bed. Carnotite is present as well as other unidentified uranium minerals.

ORE RESERVES

At the time the property was visited there were no substantial reserves in evidence within the developed portions of the deposit.

The applicant is of the opinion that given the funds necessary to further explore the mineralized horizon over an area 3,500 by 1,000 feet, about 500,000 tons of 0.10 plus U_3O_8 ore could be made available. Whether or not this estimate is based on the ratio of ore formerly found within a definite area is not known. At any rate the estimates infer a repetition of those unknown factors within the bed that control the uranium deposition.

PRESENT STATUS

The productive area has been explored by 8 sub-parallel adits from which interconnecting crosscuts, stopes, and short raises have been driven (figure 1). This work was confined to a length of about 750 feet along the outcrop and penetrated the bed for distances ranging from 30 to as much as 200 feet. Those portions of the bed lying both above and below the openings were prospected by drilling, using a wagon drill for the down holes and a stoper for the holes in the back.

PROPOSED EXPLORATION

Core Drilling

In the revised proposal submitted in writing, the applicant contemplated 9,470 feet of core drilling. During the recent conference with T. W. Newell, an assistant vice-president of the applicant corporation, the proposal was changed as follows: 12,190 feet of core drilling, consisting of 36 holes drilled from the surface on a 200-foot staggered grid pattern to an average depth of 265 feet, and 10 contingent holes to be drilled at closer intervals in the more favorable areas that might be indicated by the original holes.

Estimated Cost of Drilling

The applicant submitted bids from 2 independent core drilling contractors. The bid of R. S. McClintock, a reliable diamond drilling contractor, was $6.85 a foot for BX holes to depths of 265 feet. This price included an estimated additional allowance of 10 cents a foot for contingencies such as cementing and reaming. Under the

circumstances and in view of prevailing comparable drilling costs this bid appears excessive. The Myers Drilling Co. who submitted the other bid, employs rotary core drilling using carbide alloy cutters in place of diamonds, and drills a 4-inch hole cutting a 2-inch core. The method is a recent innovation in the Grants area and for that reason the applicant expressed some doubt as to the advisability of using that type of drilling. However, it is reported that Myers has successfully completed holes in the vicinity of the applicant's property with a much greater drilling speed than is possible in diamond drilling.

The total costs of the core drilling proposals are estimated as follows:

McClintock bid. Estimated time 6 months

Depth, feet	Price per foot	Total
0 - 20	$7.20	$144.00
20 - 145	6.70	837.50
145 - 200	6.50	357.50
200 - 265	6.90	448.50
265		$1,787.50

Average per foot	$6.75
Contingencies	0.10
Total per foot	$6.85

Independent contract - 12,190 feet @ $6.85	$83,501.50
Supervision - $600 a month	3,600.00
Sampler - 156 shifts at $15.00	2,340.00
Drill site preparation	840.00
Assaying, 6 samples per hole @ $3.50	966.00
Core boxes and incidentals	250.00
Total	$91,497.50

Average cost of diamond drilling - $7.50 a foot.

Myers' Bid

The following is a copy of the bid submitted by the W. T. Myers Drilling Company:

April 1, 1953

"Shattuck-Denn Mining Corporation
Grants, New Mexico

"Gentlemen:

"We appreciate the opportunity to bid on the drilling program you have in mind for the Dakota and the Morrison sandstone formations in the general area of your Blue Peak mining operation out of Grants, New Mexico. It is our understanding that there is approximately 9,000 feet of hole to be drilled; and that the average depths of the holes will be about 250 feet, and will not exceed 500 feet in depth. Our quotation is as follows.

Class 1 drilling: Plain hole, no casing

1st 100 feet or any part thereof	$.50 per foot
2nd " " " " " "	1.00 " "
3rd " " " " " "	1.50 " "
4th " " " " " "	2.00 " "
5th " " " " " "	2.50 " "

Class 2 drilling: Hole as above but blown clean of cuttings every two feet.

1st 100 feet or any part thereof	1.00 per foot
2nd 100 " " " " "	1.50 " "
3rd " " " " " "	2.00 " "
4th " " " " " "	2.50 " "
5th " " " " " "	3.00 " "

Class 3 drilling: Coring in formations amenable to coring.

1st 100 feet or any part thereof	3.00 per foot
2nd " " " " " "	3.50 " "
3rd " " " " " "	4.00 " "
4th " " " " " "	4.50 " "
5th " " " " " "	5.00 " "

Cementing holes in fractures and cavities and drilling cement plug. $3.00 per foot in any zone. Reaming and casing holes in fractures and cavities where necessary, $4.00 per foot in any zone. Standby time $9.00 per hour for delays at your request and account.

Drilling locations are to be staked in advance. Drilling locations are to be cleared and accessible for our equipment.

"All three classes of drilling may be combined in any hole in any proportion at the above rates. We also want to call to your attention that a 500 foot hole (plain) will average only $1.50 per foot top to bottom. Shorter holes will average proportionately lower.

The above prices cover all costs of equipment, labor, tools, supplies, materials, payroll taxes and insurances.

We are in position to move in on your work on short notice.

Very truly yours,

/s/ W. T. Myers
W. T. Myers"

Estimated Cost of Myers' Bid

Class 1 drilling

0 - 100	feet	@ $0.50 -	$50.00
100 - 145	"	@ 1.00 -	45.00

Class 3 - ~~coring~~

145 - 200	feet	@ $3.50 -	$192.50
200 - 265	feet	@ 4.00 -	260.00
265	feet, costs		$547.50 or $2.07 a foot

If instead of coring, the cuttings are used as a sample, the costs would be as follows:

Class 1, drilling

0 - 100	feet	@ $0.50 -	$ 50.00
100 - 145	"	@ 1.00 -	45.00

Class 2, drilling (no coring - cuttings collected)

145 - 200	feet	@ $1.50 -	82.50
200 - 265	"	@ 2.00 -	130.00
265	feet, costs		$307.50 or $1.16 a foot.

Allowing an additional 10 percent for possible cementing, reaming, etc., the cost of drilling under the Myers's bid would range from $2.28 a foot, if coring was used, to $1.28 if the cuttings would serve as a satisfactory sample. **It is the opinion of the local geologists**

of the Atomic Energy Commission that the drill cuttings, if properly taken, would constitute a reliable sample.

Other Costs of Myers' Bid. Estimated time - 3 months.

Supervision - 3 months @ $600	$1,800.00
Drill site preparation	850.00
Sampling and assaying	1,000.00
Miscellaneous expense	250.00
Total additional cost	$3,900.00
Average per foot of 12,190 feet of drilling	$0.32

The duties of the supervisor will consist of locating the drill sites, collection and preparation of the samples, and the recording of all pertinent data. In the productive bed a sample should be collected representing at least each 5 feet of all the drill holes. Each hole soon after completion will be logged radio-metrically by the Atomic Energy Commission at no expense to the operator. The samples previously collected that represent the horizons shown to be sufficiently radio-active by this logging should then have their U_3O_8 content determined chemically.

Summary of drilling costs (Myers' bid)	Coring @ $2.28/ft.	Cuttings only @ $1.28/ft.
Independent contract - 12,190 feet	$27,793	15,603
Other costs - 12,190 feet @ 32¢	3,900	3,900
Totals	$31,693	$19,503

Estimated Cost of Drifting and Crosscutting

The applicant proposed driving large underground openings with a rock section of about 9 by 10 feet. This has been its former practice and in so doing it used a Caterpillar Diesel D-4 tractor with a 1.5-yard loader attachment which served for both the loading and the haulage of the broken material from the face to the surface. As the face of the drifts are advanced to increasingly greater distances from the surface, this method of transporting the broken material becomes progressively slower so eventually other and faster haulage equipment would be necessary. This is the reason for the large sum($26,332) requested in the application for additional equipment.

The applicant's estimate of the cost of driving the proposed 3,400 feet of large underground openings, based on a time of 9 months, is as follows:

	Total	Per foot
Labor and supervsion	$51,544	15.16
Workman's Compensation	4,639.03	1.36
Unemployment insurance	1,546.34	0.46
Annuity tax	773.17	0.23
Liability insurance	110.00	0.03
Operating material and supplies	45,185.18	13.29
Operating equipment (New and rented)	26,362.00	7.77
Office equipment	2,500.00	0.73
New buildings	2,500.00	0.73
Assaying	5,000.00	1.47
Applicant's total estimate	$140,159.72	$41.22

The writer's estimate, given below, is based on a 5 by 7-foot opening, driven in the conventional manner, working 2 shifts daily for 6 days a week, with an average advance of 8 feet per day.

Equipment necessary 1/	Value	Monthly Depreciation
3 Rock drills	$1,800	$30.00
1 365-cfm compressor	8,000	133.00
1 Bit grinder	187	3.00
1 Geiger counter	240	4.00
1 Water tank	400	6.00
1 Ford truck	1,200	20.00
1 Ventilation blower	720	12.00
Total	$12,547	208.00

Labor	Per day	Per foot
2 Miners @ $15.00	$30.00	
4 Muckers @ $12.00	48.00	
1 Supervisor @ $600	23.00	
Overtime - 48 hr. week	6.50	
Compensation Insurance(9%)	9.68	
Unemployment Insurance(3%)	3.23	
F.I.C.A. (1.5%)	1.61	
Total labor	$122.02	$15.25

1/ To be furnished by applicant.

	Per Foot
Power	$1.75
Explosives	2.50
Bits and steel	1.50
Timber[2]	1.50
Pipe	0.60
Ventilation tubing	0.90
Track	1.20
Repair parts	0.75
Test holes[3] (2 10-foot holes every 10 feet @ $1.00 ft.)	2.00
Assaying (sample each 4 feet @ $3.50)	0.90
Depreciation (Equipment valued at $12,500)	1.00
Total per foot	$29.85

When consideration is given to incidental expenses, an estimate of $30 a foot for the underground work appears reasonable and some such amount would probably be close to the actual cost of driving a 5 by 7-foot exploratory opening by ordinary conventional methods.

SUMMARY OF TOTAL ESTIMATED COST OF PROJECT

12,190 feet of diamond drilling under the McClintock bid would cost $91,425. The same amount of drilling under the Myers bid would cost $31,693 if core was taken in the productive horizon and $19,503 if the cuttings from that horizon would serve as a satisfactory sample. The cost of 3,400 feet of drifting and cross-cutting at $30 a foot, as estimated by the writer, would amount to $102,000. Thus the total cost of the proposed project would be $193,425 in case the bid of McClintock was accepted. If Myers was awarded the drilling contract the total cost would amount to $133,693 if coring was necessary and $121,503 if the collection of the drill cuttings would serve as a sample.

2/ Occasional sets where back is fractured.
3/ To explore the full thickness of the sandstone bed.

Paul E. Melancon, who is in charge at Grants for the Atomic Energy Commission office, recently informed the examiners that the work of the Myers Drilling Co. had been found satisfactory and that He knew of no reason why it would not be suitable for the proposed drilling on the subject property. He said also that holes drilled to an average depth of 265 feet on the Shattuck-Denn property might be somewhat deeper than necessary.

CONCLUSIONS AND RECOMMENDATIONS

The DMEA examiners have concluded that the deposit is worthy of further exploration but not in the manner originally proposed by the applicant. In order to save time the applicant desired to perform the underground work concurrently with the drilling. In case of such a procedure it appears that the underground work would be largely "blind" if it were not preceded by drilling. For that reason it was not considered feasible to start the drifting until the presence of a suitable ore body had been indicated by the preliminary drilling.

Consequently it is recommended that the project be set up in 2 stages, stage 1 to consist of the proposed drilling, and the underground work constituting stage 2. The second stage, although contingent upon the results of stage 1, need not necessarily await the completion of all the drilling but could be started as soon as a suitable discovery was indicated by any of the drilling.

In view of the recommendation by the Atomic Energy Commission and the saving in cost, it appears that the bid of Myers Drilling Co. should be accepted.

It is suggested that the project be set up, if possible, as a short form contract along the following lines:

Stage 1. An allowable maximum of 12,190 feet of drilling at a cost not to exceed $31,693. The price paid per foot to be based on the actual footage of each class of drilling performed at the rates specified in the Myers' bid. In other words, the Government would pay 90 percent of the monthly invoice submitted by the contractor. In addition the operator would be paid 29 cents (90% of 32 cents) per foot drilled to cover his share of the other costs, such as supervision, sampling, etc.

Stage 2. The 3,400 feet of drifting and crosscutting to be paid for at the rate of $27 a foot (90 percent of $30). It appears that the applicant will probably employ his present equipment and continue driving the large exploratory openings. There is no apparent objection to this procedure so long as any additional costs incurred in driving larger than standard size openings are borne by the applicant.

SHATTUCK DENN MINING CORPORATION
EXPLORATION PROJECT CONTRACT
DOCKET NO. DMEA-2765

EXHIBIT "A"

Description of the Work: The object of this exploration project is the discovery of commercial carnotite-type uranium ores, which in the subject area occur in the sandstone portion of the Brushy Basin shale member of the Morrison formation. The initial work, estimated to require a 3 months time period, shall consist of drilling test holes to and through this proudctive stratigraphic section.

The Field Team shall review the data obtained as a result of the inital drilling, and after consultation with the A. E. C. shall make recommendations concerning the amount and nature of additional work that would be justified to further explore the subject property. If in the opinion of the Administration the recommended additional work is warranted, this contract may be amended to provide for it, that is, providing authority exists at that time for the DMEA to execute such an amendment.

The initial work shall consist of non-core drilling 33 primary holes and 13 secondary holes to an approximate depth of 265 feet each, or a total of 12,190 feet of drilling. If the depth of the stratum which is to be explored requires holes less than 265 feet deep, additional holes may be drilled, but the total footage of all holes shall not exceed 12,190 feet. The minimum spacing of those drill holes shall be 50 feet and the maximum 200 feet.

Drill cuttings from the holes shall be assayed for their uranium content, also the holes shall be radiometrically logged, providing the Atomic Energy Commission agree to do so. The method of sampling, logging, and location of the drill holes shall be subject to Government approval.

The work shall be directed by a Government approved full time engineer sor, who shall perform the necessary surveying, mapping, sampling, writing and other duties required for the satisfactory operation of this project.

AGREED UNIT COSTS

Non-coro drilling (with cuttings recovered from the depth of 145 feet to the bottom of each hole) 12,190 feet @ $1.60/ft. 1/	$ 19,500.00 2/
90 % Government participation	$ 17,550.00 2/

1/ Includes, supervision, drill site preparation, sampling, assaying and miscellaneous expenses. 2/ Figures rounded.

750' Drift
400' Crosscuts
1150' @ $30.00 = $34,500
$19,500 - Drilling
$54,000
90% $48,600

MF-200 (A)
(February 1952)

DOCKET NO. DMEA 2765

COMMODITY Uranium

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

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] Shattuck Denn Mining Corporation
Mr. Thomas Brandon, President
120 Broadway, New York 5, N.Y.

hereinafter called the "Operator," as follows:

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

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of New Mexico, County of McKinley, described as follows:[3] 27 lode claims situated in the North 3/4 Section of Sec. 24, T. 13 N., R 10 W, New Mexico meridian, Haystack Mining District, New Mexico as shown in Figure 1 - claim map and further described in Annex II, both attached hereto and made a part hereof.
the Operator represents and undertakes:[4]

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

(*b*) That the Operator is a lessee, in possession and entitled to possession, and the Owner's Consent to Lien is attached.

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

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

in or upon the described land; and shall bring the project to completion within a period of 6 months from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay 90 percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $17,550.00, which is 90 percent of $19,500.00, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 9. *Changes and added provisions* _____

_____

_____

_____

_____

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

_____
(Operator)

By _____

By _____

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

_____ [CORPORATE SEAL]

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

NM-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of New Mexico, County of McKinley, described as follows:1/

As more particularly described in Exhibit "A" hereto attached and incorporated herein by reference.

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ SHATTUCK-DENN MINING CORP., a Delaware corporation,

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ _____, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this _____ day of JUL 31 1953, 195 __.

Ruth LaRue [Seal] Ruth LaRue

Charles Riecke [Seal] Lena Riecke

Al Green [Seal] Zac Green

O. P. Green Reed Dunn

1/ 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.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

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

4/ Insert the maximum amount of the Government's contribution.

MF-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of _____, County of _____, described as follows:1/

_____

_____

_____

_____

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/_____

_____

_____

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ _____, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this _____ day of _____, 195 ___.

_____ [Seal]

_____ [Seal]

_____ [Seal]

1/ 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.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

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

4/ Insert the maximum amount of the Government's contribution.

RELEVANT CONTRACT PROVISIONS

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

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

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

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

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

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

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Title to and disposition of property. All facilities, buildings, fixtures, equipment, or other items costing more than $50.00 each, paid for or purchased with funds contributed jointly by the Operator and the Government, although title may be taken in the name of the Operator, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the completion of the work or the termination of the contract shall be disposed of promptly by the Operator for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator at a price at least as high as could otherwise be obtained, as may appear to be for the best interest of the Government, unless the Government, in writing, waives its interest in any such item. If necessary to accomplish such disposition, the Operator shall dismantle, sever from the land, and remove any such item, the cost thereof to be for the joint account of the parties in proportion to their respective interests. If the Operator, within 90 days after the receipt of written notice from the Government, fails, neglects, or refuses to dispose of such property, the Government may itself enter upon the land, take possession of, and remove and dispose of any such property as above provided.

MP-203

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As more particularly described in Exhibit "A" hereto attached and incorporated herein by reference.

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2/ SHATTUCK-DENN MINING CORP., a Delaware corporation.

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

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Dated this _____ day of JUL 31 1953, 195 __.

Robert D. Isaacson — Jane M. Isaacson
Ken LaRue [Seal] — Ruth LaRue
Charles Riecke [Seal] — Dena Riecke
Al Green [Seal] — Zan Green
W. T. Green — Reed Dunn

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Dated this _____ day of _____, 195 ___.

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MP-203

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Dated this _____ day of JUL 31 1953, 195 __.

John G. Grauer [Seal] Ruth La Rue
Ruth La Rue [Seal] Dena Ricke
Charles Ricke [Seal] Earl Green
Al Green [Seal] Reed Deed
W. E. Green

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MF-203

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Dated this _____ day of JUL 31 1953, 195 __.

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Charles Riecke [Seal] Dena Riecke

Al Green [Seal] Zan Green

W. R. Green Reed Green

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MP-203

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Al Green [Seal] Zan Green
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4/ Insert the maximum amount of the Government's contribution.

MF-203

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which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/_____

_____

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hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ _____, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this _____ day of _____, 195 ___.

_____ [Seal]

_____ [Seal]

_____ [Seal]

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MF-203

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Dated this _____ day of JUL 31 1953, 195 __.

John A. Isaacson [Seal] Ruth La Rue
Ruth La Rue [Seal] Lena Ricke
Charles Ricke [Seal] Earl Green
Al Green [Seal] Reed Dunn
W. P. Green

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MP-203

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Dated this _____ day of JUL 31 1953, 195 __.

Robert D. Brown [Seal] Jane M. Brown
Ken LaRue [Seal] Ruth LaRue
Charles Riecke [Seal] Dena Riecke
Al Green [Seal] Zan Green
W. R. Green Reed Dunn

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R. N. LaRue [Seal] Ruth LaRue
Charles Riecke [Seal] Dena Riecke
A. Gruer [Seal] Zac Gruer
W. R. Greer Reed Greer

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EXPLORATION PROJECT CONTRACT
DOCKET NO. 3062
SHATTUCK DENN MINING CORPORATION
McKINLEY CO. NEW MEXICO
ANNEX II (Annex I by legal dept)

The 27 claims are made up from 4 groups of claims. The location notices were of are recorded in the Mining Claim Records of the Office of the Recorder of Gallup, McKinley County,

South Peak claims

South Peak No 1	Book 10	Page	287
" " Nos. 2 & 3	" "	"	286
" " Nos. 4 & 5	" "	"	285

Blue Peak claims

Blue Peak Nos 1 & 2	Book 3	page	298
" " " 3 & 4	" "	"	299
" " " 5 & 6	" "	"	300
" " No 7	" "	"	301

Red Top Claims

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Garcia Claims

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(EXHIBIT "A")

BLUE PEAK CLAIM NO. 1: Beginning 1906 feet South of the Northeast corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South on the section line to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 298, in the office of the Probate Clerk and Ex-officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 2: Beginning 2156 feet South of the North line and 600 feet West of the East line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 298 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 3: Beginning 2281 feet South of the North line and 1200 feet West of the East line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 299 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 4: Beginning 2281 feet South of the North line and 1800 feet West of the East line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 299 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 5: Beginning 2281 feet South of the North line and 2400 feet West of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 300 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 6: Beginning 1500 feet West of the Northeast corner on the North line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet South, 180 feet West, 1500 feet North, 180 feet East to the point of beginning; the location notice whereof being of record in Book 3, Page 300 of Mining Claim Records in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 7: Beginning 1600 feet West of the Northeast corner on the North line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet South, 600 feet West, 1500 feet North, 600 feet East to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 301 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 1: Beginning 1500 feet North of the Southwest corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South, 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 262 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 2: Beginning 1500 feet North of the South line and 600 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South 600 feet West to the point of beginning; The location notice whereof being of record in Book 3 of Mining Claim Records at Page 262 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 3: Beginning 1500 feet North of the South line and 1200 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South, 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 263 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 4: Beginning 1500 feet North of the South line and 1800 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South, 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 263 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 5: Beginning 1500 feet North of the South line and 2400 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South and 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 264 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 6: Beginning 1500 feet North of the South line and 3000 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence [illegible] feet North, 600 feet East, 1500 feet South, and 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 264 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 7: Beginning 1500 feet North of the South line and 3600 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence [illegible] feet North, 600 feet East, 1500 feet South and 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 265 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 8: Beginning 1500 feet North of the South line and 4200 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, thence 1500 feet North, 480 feet East, 1500 feet South, 480 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 265 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 9: Beginning 3000 feet North along the section line from the Southwest corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet East, 600 feet North, 1500 feet West, 600 feet South on the West line of said Section 24 to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 266 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 10: Beginning 3600 feet North along the Section line from the Southwest corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet East, 180 feet North, 1500 feet West, 180 feet South to the point of beginning on the West line of Section 24; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 266 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 1 and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point 1500 feet South from the Northwest corner of said Section Twenty-four (24) and running thence Easterly parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet to the Northwest corner of said Section Twenty-four (24); thence running South along the West line of Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950, and recorded December 27, 1950 in Book 10 at Page 237 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 2 and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 600 feet East from the Northwest corner of said Section Twenty-four (24) and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950, and recorded December 27, 1950, in Book 10 at Page 236 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 3 and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 1200 feet East of the Northwest corner of said Section Twenty-four (24), and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running

South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950 and recorded December 27, 1950 in Book 10 at Page 285 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 4, and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 1800 feet East from the Northwest corner of said Section Twenty-four (24) and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950, and recorded December 27, 1950 in Book 10 at Page 285 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 5 and covering the following land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 2400 feet East from the Northwest corner of said Section Twenty-four (24) and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950 and recorded December 27, 1950, in Book 10 at Page 285 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico;

All of the above mining claims being situate in Haystack Mining District, County of McKinley, State of New Mexico.

GARCIA NO. 1: This claim is located in the Southeast Quarter of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West; starting at the center of claim and running three hundred (300) feet to monument, thence running West seven hundred fifty (750) feet, thence North six hundred (600) feet, thence East fifteen hundred (1500) feet, thence South six hundred (600) feet, thence West to the point of beginning.

GARCIA NO. 2: This claim is located in the Southwest Quarter of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West. Starting at the Monument containing this notice and extending three hundred (300) feet North, thence East seven hundred fifty (750) feet, thence six hundred (600) feet South, thence West fifteen hundred (1500) feet, thence six hundred (600) feet North, thence seven hundred fifty (750) feet East to starting point. This claim lays near top of highest point of high rough ridge.

GARCIA NO. 3: Starting at monument containing this notice and running North three hundred (300) feet to beneath Garcia Claim No. 1, thence seven hundred Fifty (750) feet East along said claim, thence South six hundred (600) feet, thence fifteen hundred (1500) feet West, thence six hundred (600) feet North to beneath Garcia Claim No. 2, thence East to point of beginning. This claim is in the Southeast Quarter of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, approximately seventeen hundred (1700) feet from the South line of said Section Twenty-four (24).

GARCIA No. 4: This claim is in the Northeast Quarter of the Southeast Quarter (NE¼SE¼) of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, starting at the monument running East to Section line of Section Twenty-four (24), thence North seven hundred fifty (750) feet, thence West six hundred (600) feet, thence South fifteen hundred feet (1500) thence East Six hundred (600) feet to Section line, thence North seven hundred fifty (750) feet to point of beginning.

GARCIA NO. 5: This claim joins Garcia No. 2 West of the center of the North line of said No. 2 claim and extends fifteen hundred (1500) feet in a northerly direction thence six hundred (600) feet westerly, then fifteen hundred (1500) feet southerly to join No. 2 claim, thence East six hundred (600) feet to point of beginning.

All of the above claims being situate in Mt. Taylor Mining District (Haystack Mining District), County of McKinley, State of New Mexico.

OPTION

For and in consideration of the sum of Twenty-five Hundred ($2500.00) Dollars in hand paid this 31st day of July, 1953, AL GREER, JOHN A. GRAVES, H. N. LaRUE and CHARLES RINCKE, of Aztec, New Mexico, and W. P. GREER of Continental Divide, New Mexico, co-partners d/b/a BLUE PEAK MINING COMPANY, jointly and severally and being joined herein by their respective wives, FAY GREER, JANE GRAVES, RUTH LaRUE, LENA RINCKE and NELL GREER, hereby grant to SHATTUCK-DENN MINING CORPORATION the exclusive right and option to accept and enter into that certain MINING LEASE as amended this date, a copy of which, together with amendments, is attached hereto, at any time on or before the 1st day of April, 1954.

In the event that the said SHATTUCK-DENN MINING CORPORATION shall not exercise its right and option to accept said lease and enter into said lease on or before the 1st day of April, 1954, by giving notice in writing and by forwarding executed original copy of said lease to the BLUE PEAK MINING COMPANY, c/o P. O. Box 296, Aztec, New Mexico, then said sum of Twenty-five Hundred ($2500.00) Dollars shall be forfeited and all rights of the SHATTUCK-DENN MINING CORPORATION in and to said lease as amended, said lease between the BLUE PEAK MINING COMPANY and the SHATTUCK-DENN MINING CORPORATION shall cease and determine, and the BLUE PEAK MINING COMPANY shall be entitled to immediate possession of the claims

proposed to be demised thereunder, with right of SHATTUCK-DENN MINING CORPORATION to remove its machinery and equipment as provided in the attached lease as amended.

WITNESS our hands and seals this 31st day of July, 1953.

John A. Green	Jane M. Green
Al Green	Day Green
Charles Riecke	Lena Riecke
H. L. LaRue	Ruth LaRue
W. P. Green	Nell Green

STATE OF NEW MEXICO }
COUNTY OF SAN JUAN } ss

On this 31st day of July, 1953, before me personally appeared AL GREER and FAY GREER, husband and wife, JOHN A. GRAVES and JANE GRAVES, husband and wife, H. N. LaRUE and RUTH LaRUE, husband and wife, and CHARLES RIECKE and LENA RIECKE, husband and wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

WITNESS my hand and seal the day and year last above written.

Esther Shane
Notary Public

My commission expires:
10/18/57

STATE OF NEW MEXICO }
COUNTY OF } ss

On this 1 day of August, 1953, before me personally appeared W. P. GREER and NELL GREER, husband and wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

WITNESS my hand and seal the day and year last above written.

Esther Shane
Notary Public

My commission expires:
10/18/57

AMENDMENT TO MINING LEASE

THIS AGREEMENT, made and entered into as of the 1st day of July, 1953, by and between AL GREER, JOHN A. GRAVES, H. N. LaRUE and CHARLES RIECKE, of Aztec, New Mexico, and W. P. GREER of Continental Divide, New Mexico, co-partners d/b/a Blue Peak Mining Company, jointly and severally and being joined herein by their respective wives, FAY GREER, JANE GRAVES, RUTH LaRUE, LENA RIECKE and NELL GREER, hereinafter called "Lessors", and SHATTUCK-DENN MINING CORPORATION, a Delaware corporation authorized to do business within the State of New Mexico, hereinafter called "Lessees",

W I T N E S S E T H:

WHEREAS, Lessee is the holder of an option to enter into mining lease dated April 1, 1953, with Lessors covering mining claims identified in said lease as "Blue Peak Claims" and "Red Top Claims", and rights of Blue Peak Mining Company in mining leases known as the "Garcia Lease" and the "Minoletti Lease"; and,

WHEREAS, said mining lease may be granted to Lessee by exercize of its option on or before the 1st day of April, 1954; and,

WHEREAS, it is mutually agreed by the parties to amend the annual advance royalty to be paid to Lessors thereunder;

NOW, THEREFORE, it is mutually agreed as follows:

That Paragraph 6 of said lease shall be amended to read as follows:

"6. Lessee agrees to pay the Lessors during each contract year during the existence of this lease, on or before the 1st day of April of each year, an annual advance royalty of Ten Thousand ($10,000.00) Dollars, it being specifically understood that the consideration for the year 1954 shall be said annual advance royalty

of Ten Thousand ($10,000.00) Dollars and that the sum of Four Thousand ($4000.00) Dollars heretofore paid by Lessee to Lessors shall n ot constitute annual advance royalty for either the year 1953 or for the year 1954 or any year thereafter."

In all other respects and provisions said lease is reaffirmed by the parties hereto as though rewritten herein in full.

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

LESSORS

SHATTUCK-DENN MINING CORPORATION
a Delaware Corporation

ATTEST:

By_____
Its_____

_____
Its_____

STATE OF NEW MEXICO)
COUNTY OF SAN JUAN) ss

On this ____ day of August, 1953, before me personally appeared AL GREER and FAY GREER, his wife; JOHN A. GRAVES and JANE GRAVES, his wife; H. N. LaRUE and RUTH LaRUE, shi wife; CHARLES RIECKE and LENA RIECKE, his wife, to me known to be the persons described in, and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

WITNESS my hand and seal the day and year in this certificate first above written.

_____
Notary Public

My commission expires:

_____

STATE OF NEW YORK)
COUNTY OF NEW YORK) ss

On this ____ day of August, 1953, before me personally appeared _____ and _____, to me personally known, who being by me duly sworn, did say that they are _____ and _____, respectively of SHATTUCK-DENN MINING CORPORATION, a corporation organized under the laws of the State of Delaware, and that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors, and said _____ and _____ acknowledged said instrument to be the free act and deed of said corporation.

WITNESS my hand and seal the day and year in this certificate first above written.

_____
Notary Public

My commission expires:

_____

STATE OF NEW MEXICO }
COUNTY OF SAN JUAN } ss

On this ____ day of August, 1953, before me personally appeared W. P. GREER and NELL GREER, his wife, to me known to be the persons described in, and who executed the foregoing instrument and acknowledged that they executed the same as their act and deed.

WITNESS my hand and seal the day and year in this certificate first above written.

_____
Notary Public

My commission expires:

_____

OPTION

For and in consideration of the sum of Twenty-five Hundred ($2500.00) Dollars in hand paid this 31st day of July, 1953, AL GREER, JOHN A. GRAVES, H. N. LaRUE and CHARLES RINCKE, of Aztec, New Mexico, and W. P. GREER of Continental Divide, New Mexico, co-partners d/b/a BLUE PEAK MINING COMPANY, jointly and severally and being joined herein by their respective wives, FAY GREER, JANE GRAVES, RUTH LaRUE, LENA RINCKE and NELL GREER, hereby grant to SHATTUCK-DENN MINING CORPORATION the exclusive right and option to accept and enter into that certain MINING LEASE as amended this date, a copy of which, together with amendments, is attached hereto, at any time on or before the 1st day of April, 1954.

In the event that the said SHATTUCK-DENN MINING CORPORATION shall not exercise its right and option to accept said lease and enter into said lease on or before the 1st day of April, 1954, by giving notice in writing and by forwarding executed original copy of said lease to the BLUE PEAK MINING COMPANY, c/o P. O. Box 296, Aztec, New Mexico, then said sum of Twenty-five Hundred ($2500.00) Dollars shall be forfeited and all rights of the SHATTUCK-DENN MINING CORPORATION in and to said lease as amended, said lease between the BLUE PEAK MINING COMPANY and the SHATTUCK-DENN MINING CORPORATION shall cease and determine, and the BLUE PEAK MINING COMPANY shall be entitled to immediate possession of the claims

proposed to be demised thereunder, with right of SHATTUCK-DENN MINING CORPORATION to remove its machinery and equipment as provided in the attached lease as amended.

WITNESS our hands and seals this 31st day of July, 1953.

John A. Green	Jane M. Green
Al Green	Day Green
Charles Riecke	Lena Riecke
H. A. LeRue	Ruth LeRue
W. P. Green	Nell Green

STATE OF NEW MEXICO }
COUNTY OF SAN JUAN } ss

On this 31st day of July, 1953, before me personally appeared AL GREER and FAY GREER, husband and wife, JOHN A. GRAVES and JANE GRAVES, husband and wife, H. N. LaRUE and RUTH LaRUE, husband and wife, and CHARLES RIECKE and LENA RIECKE, husband and wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

WITNESS my hand and seal the day and year last above written.

Esther Crane
Notary Public

My commission expires: 10/18/54

STATE OF NEW MEXICO }
COUNTY OF } ss

On this 1 day of August, 1953, before me personally appeared W. P. GREER and NELL GREER, husband and wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

WITNESS my hand and seal the day and year last above written.

Esther Crane
Notary Public

My commission expires: 10/18/54

AMENDMENT TO MINING LEASE

THIS AGREEMENT, made and entered into as of the 1st day of July, 1953, by and between AL GREER, JOHN A. GRAVES, H. N. LaRUE and CHARLES RIECKE, of Aztec, New Mexico, and W. P. GREER of Continental Divide, New Mexico, co-partners d/b/a Blue Peak Mining Company, jointly and severally and being joined herein by their respective wives, FAY GREER, JANE GRAVES, RUTH LaRUE, LENA RIECKE and NELL GREER, hereinafter called "Lessors", and SHATTUCK-DENN MINING CORPORATION, a Delaware corporation authorized to do business within the State of New Mexico, hereinafter called "Lessees",

W I T N E S S E T H:

WHEREAS, Lessee is the holder of an option to enter into mining lease dated April 1, 1953, with Lessors covering mining claims identified in said lease as "Blue Peak Claims" and "Red Top Claims", and rights of Blue Peak Mining Company in mining leases known as the "Garcia Lease" and the "Minoletti Lease"; and,

WHEREAS, said mining lease may be granted to Lessee by exercize of its option on or before the 1st day of April, 1954; and,

WHEREAS, it is mutually agreed by the parties to amend the annual advance royalty to be paid to Lessors thereunder;

NOW, THEREFORE, it is mutually agreed as follows:

That Paragraph 6 of said lease shall be amended to read as follows:

"6. Lessee agrees to pay the Lessors during each contract year during the existence of this lease, on or before the 1st day of April of each year, an annual advance royalty of Ten Thousand ($10,000.00) Dollars, it being specifically understood that the consideration for the year 1954 shall be said annual advance royalty

of Ten Thousand ($10,000.00) Dollars and that the sum of Four Thousand ($4000.00) Dollars heretofore paid by Lessee to Lessors shall n ot constitute annual advance royalty for either the year 1953 or for the year 1954 or any year thereafter."

In all other respects and provisions said lease is reaffirmed by the parties hereto as though rewritten herein in full.

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____
LESSORS

SHATTUCK-DENN MINING CORPORATION
a Delaware Corporation

ATTEST:

By_____
Its_____

_____
Its_____

STATE OF NEW MEXICO)
COUNTY OF SAN JUAN) ss

On this ____ day of August, 1953, before me personally appeared AL GREER and FAY GREER, his wife; JOHN A. GRAVES and JANE GRAVES, his wife; H. N. LaRUE and RUTH LaRUE, shi wife; CHARLES RIECKE and LENA RIECKE, his wife, to me known to be the persons described in, and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

WITNESS my hand and seal the day and year in this certificate first above written.

_____
Notary Public

My commission expires:

_____

STATE OF NEW YORK)
COUNTY OF NEW YORK) ss

On this ____ day of August, 1953, before me personally appeared _____ and _____, to me personally known, who being by me duly sworn, did say that they are _____ and _____, respectively of SHATTUCK-DENN MINING CORPORATION, a corporation organized under the laws of the State of Delaware, and that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors, and said _____ and _____ acknowledged said instrument to be the free act and deed of said corporation.

WITNESS my hand and seal the day and year in this certificate first above written.

_____
Notary Public

My commission expires:

_____

STATE OF NEW MEXICO }
COUNTY OF SAN JUAN } ss

On this ____ day of August, 1953, before me personally appeared W. P. GREER and NELL GREER, his wife, to me known to be the persons described in, and who executed the foregoing instrument and acknowledged that they executed the same as their act and deed.

WITNESS my hand and seal the day and year in this certificate first above written.

_____
Notary Public

My commission expires:

_____

700

DOCKET
SURNAME

MAR 8 1954

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 2, New York

Re: Docket No. DMEA-2765 (Uranium)
Gervais and Blue Peak Groups
McKinley County, New Mexico

Dear Mr. Bardon:

Reference is made to my letter to you under date of January 15, 1954, concerning the captioned proposed exploration project.

Due to our not receiving advice from you that your corporation had acquired the necessary rights in the subject property, I regret to advise that this docket has been closed on our records as of March 1, 1954, in accordance with my letter of January 15, 1954.

This action is taken without prejudice to the consideration by this Agency of any future application you may wish to file concerning this property. However, under the present regulations, the Government participation will of necessity be on a 75/25 percent basis, rather than on the 90/10 percent, as set forth in my letter to you of January 4, 1954.

Sincerely yours,

G. O. Mittendorf (fw)

Administrator

EWEllis/foc
3-4-54
cc to: Adm. Reading File
Docket
MDKeiser, USBM
APButler, Rm. 3212 -GSA
Code 700
Mr. Knouse
Region IV (2)

RCB

140

FILE COPY
SURNAME:

Hofflund
Murphy
Ellis
Johnson

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

JAN 15 1954

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 2, New York

Re: Docket No. DMEA-2765 (Uranium)
Garcia and Blue Peak Groups
McKinley County, New Mexico

Dear Mr. Bardon:

In your letter to me of January 6 you requested that I hold open until May 1, 1954, your application for assistance under our exploration program, instead of until March 1, 1954, as stated in my letter to you of January 4.

In view of the unusual length of time that your application had been pending, because you had not acquired the necessary rights in property, I felt that the period granted in my letter of January 6, within which you might bring yourself within the requirements of our program, was very liberal. At any rate, it does not seem fair to me that I should hold open to you the right to receive participation by the Government at the rate of 90 percent when present applicants are able to receive only 75 percent, merely because you do not now have the necessary property rights. In these circumstances, I feel compelled to advise you that March 1, 1954, will have to remain the limit of time within which this agency will act upon your present application under the regulations in effect when you filed that application.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

JLHofflund/emd 1/13/54
Copy to: Docket
Adm. R. File
C. O. Mittendorf
Operating Committee
E. W. Ellis
Field Team, Reg. IV (2)

J. L. Hofflund
H.D.Keiser, Rm. 3641
A.O.Butler,Jr., Rm. ~~3x2~~ 3212,GS
chron.
pending

1/11/54 gla

Department of the Interior
Defense Minerals Administration
RECEIVED
JAN - 7 1954

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

January 6, 1954

ans. 1/13/54 JLH/lend

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

Re: Docket No. DMEA-2765 (Uranium)
Garcia and Blue Peak Groups
McKinley County, New Mexico

Dear Mr. Mittendorf:

Replying to your January 4 letter in regard to our pending application for an exploration loan on the property mentioned above, I can reply that we now have a lease on the property in question. This lease expires March 31, 1954. To date we have been unable to reach a satisfactory extension of the lease for a period sufficiently long to complete the exploratory work contemplated by our application. We trust, however, that the owners will modify their present unreasonable demands and therefore request that you hold our application open until May 1, 1954, rather than until March 1, 1954, in order that we may have thirty days in which to submit further data in support of the application if agreement is reached for an extension of the lease.

The property seems to have considerable merit as a potential low grade but sizable uranium producer and it would be in the interest of the Government as well as of the lessor and lessee to have it explored.

Yours very truly,

Thomas Bardon
President

TB:twp

RECEIVED
JAN 11 1954
DEFENSE MINERALS
ADMINISTRATION

140

FILE COPY
SURNAME:

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

Hoffland
Murphy
Ellis

JAN - 4 1954

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: Docket No. DMEA-2765 (Uranium)
Garcia and Blue Peak Groups
McKinley County, New Mexico

Dear Mr. Bardon:

Reference is made to your letter of December 18 addressed to Mr. Ernest Wm. Ellis, Chief, Rare and Miscellaneous Metals Division, in which you request that we hold your application in inactive status until you advise us with respect to your property rights.

This application has been pending now for more than a year, and we have been unable to consummate a contract with you because you have not brought yourself within the requirements of our exploration program. Your letter of December 18 now seems to indicate that you either do not have a lease upon the property in question, or that your lease does not give you all that you require for purposes of the proposed exploration project.

This agency is not authorized to hold your application open indefinitely. Under the circumstances of this case, I feel compelled to advise you that unless you have acquired satisfactory rights in the subject property and are able to consummate the proposed exploration project contract, on or before March 1, 1954, your application will be denied as of that date and placed in the inactive file.

You may, of course, at any time you see fit file with us a new application and we will give it every consideration under whatever authority we may then be operating. If your present application is acted upon on or before the time which I have fixed for its denial, the Government's contribution under the present authority of DMEA would be 90 percent. After that date (March 1, 1954) the Government's participation would be 75 percent if DMEA is then operating under its present authority.

R.S.S.
1-4-54

Regardless of whether we ultimately enter into a contract with you, we are grateful for your interest in our exploration program, and hope that your property will be explored at least to the extent that we have contemplated up to this point.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

JLHofflund/emd 12/30/53

Copy to: Docket
Adm. R. File
C. O. Mittendorf
H. D. Keiser, Rm. 3641
A. P. Butler, Jr., Rm. 3212, GSA
E. W. Ellis
Field Team, Region IV (2)
J. L. Hofflund
chron.
panding

12/23/53 gla

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 21 1953

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

December 18, 1953

RECEIVED
DEC 28 1953
DEFENSE MINERALS ADMINISTRATION

Mr. Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMEA-2765 (Uranium)
Garcia and Blue Peak Groups
McKinley County, New Mexico

Dear Mr. Ellis:

I have received your December 17 letter relating to the above described application for an exploration loan. Shortly after you received the December 10 letter from the lawyer for the Blue Peak Mining Company, which is referred to in your letter, we encountered further difficulties with the Blue Peak group, owner of the property which we had under lease and which we had intended to explore. To date we have been unable to arrive at a satisfactory agreement with such owners but negotiations are still pending and it is possible that terms agreeable to both lessor and lessee will be reached.

In the meantime, we request that you hold our application in an inactive status. As soon as we reach a definite conclusion with the lessor we will so advise you.

We have noticed that DMEA has recently reduced the Government's participation in exploratory loans from a maximum of 90% to a maximum of 75%. From the published information about this change in policy we are unable to determine whether this reduction will apply to applications filed before the reduction was announced or whether it will apply to applications filed after that date. We would appreciate your advice in regard to the effective date of this reduction, or more specifically if our application for the above mentioned loan were ultimately approved whether the Government's participation would be 90% or 75%.

Yours very truly,

Thomas Bardon
President

TB:twp

Telegram to President Hiss Barber.

Mendocito has evidence of some interest in property at present owned by Rights and Hopkins. Respectfully request concert to the option to close (dated July 31/03) permitting you to explore and develop the property prior to exercising your option rights.

I believe the property could be done before April 1st.

Sept. 8/03 J. Murphy

JOHN A. GRAVES
H. N. LA RUE
CHAS. RIECKE
W. P. GREER
AL GREER

9/6/53 gla

P. O. BOX 296
TEL. 40-J

BLUE PEAK MINING COMPANY

AZTEC, NEW MEXICO

September 10, 1953

DEPARTMENT OF THE INTERIOR
Defense Mineral Exploration Administration
RECEIVED
SEP 11 1953

Defense Mineral Exploration Administration
Department of the Interior
New Interior Building
Washington 25, D. C.

In Re: Docket No. D.M.E.A.-2765
(Uranium) McKinley County,
New Mexico

Attention: Mr. Murphy

Gentlemen:

We are executing lease on certain mining property in McKinley County, New Mexico, to the Shattuck-Denn Mining Corporation as a result of the exercise of their option to enter into said lease of September 10, 1953.

This is to advise that from this date on the Shattuck-Denn Mining Corporation has full right to go upon the properties described in said lease for the purpose of drilling and otherwise exploring the property.

These claims, as more specifically described in the option and in the Mining lease itself as amended, are known as the Blue Peak claims, Red Top claims, Garcia lease, and Minoletti lease.

Very truly yours,

Esther Crane Young

Esther Crane Young, Attorney
BLUE PEAK MINING COMPANY

ECY:jl
cc: Mr. Thomas Bardon, New York, N.Y.
Mr. Charles McDaniel, Prescott, Arizona

9/16/53-3gla

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 15 1953

SHATTUCK DENN MINING CORPORATION

120 BROADWAY

NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

September 14, 1953

Mr. F. M. Murphy
Defense Minerals Exploration Administration
Room 4640 - New Interior Building
United States Department of the Interior
Washington 25, D.C.

Re: Docket No. DMEA-2765 (Uranium)
McKinley County, New Mexico

Dear Mr. Murphy:

Since receiving Mr. Mittendorf's letter of September 3 and after the telephone talks had with you about our uranium property near Grants, New Mexico, I have been in touch with Mr. T. W. Newell and others in our company who are familiar with the matter. Apparently there is some misunderstanding regarding the type of holes which DMEA contemplates and about the bids which we have received from drilling contractors. I am leaving here shortly on a western trip during which there will be an opportunity to go over the subjects more thoroughly on the ground and on my return I will be in a better position to discuss these figures. My present feeling is that the best progress can be made by bringing Mr. Newell to Washington for a conference with you and the other representatives of DMEA. If such a conference can be arranged it would be during the early part of October.

In regard to the questions which were raised by DMEA's attorneys, I have discussed them with our attorney, Mr. Charles E. McDaniel of Prescott, Arizona, and with the lessors' attorney, Mrs. Esther Crane Young, and we are submitting to you certain letters and papers which I trust will be approved by DMEA's attorneys. When the latter have had a chance to study these papers and reach a decision in regard to them, I would appreciate being so advised.

Yours very truly,

Thomas Bardon

President

TB:twp

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

Murphy
Mittendorf

Mr. Thomas Nardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, N. Y.

DEC 17 1953

Lazarke
Selfridge
Phillips

Re: Docket No. DMA-2765 (Uranium)
Garcia and Blue Peak Groups
McKinley County, New Mexico

Dear Mr. Nardon:

Reference is made to Mr. C. O. Mittendorf's letter to you under date of September 3, 1953, outlining a proposed alternative program with reference to the captioned application, to which you replied on September 14. In addition we received a letter dated September 10 from Esther Crane Young, Attorney, Blue Peak Mining Company, a copy of which was forwarded to you and Mr. Charles McDaniel, your attorney in Prescott, Arizona. This letter stated that a lease was being executed on certain mining property in McKinley County, New Mexico, to the Shattuck-Denn Mining Corporation as a result of the exercise of your option to enter into said lease of September 10, 1953. However, to date we have not received the leases referred to in these communications.

We are unable to proceed with the processing of your application until the data requested in our letter of September 3 is received. We would, therefore, appreciate being informed at your earliest convenience your present position in the matter.

Sincerely yours,

SIGNED

Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division

EWMurphy/gla/db
12-14-53
cc to: Adm. Reading File
Docket
Messrs: H. D. Keiser, Rm. 3641
A. P. Butler, Jr., Rm. 3212, GSA
Ellis
Field Team, Region IV (2)

R.C.L.
12-17-53

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

Murphy
Larrabee
Selfridge
Kylman

DEC 17 1953

Mr. [illegible] King,
Executive Officer
[illegible] Building, Section IV
[illegible] Curtis and Stout
Denver 2, Colorado

Re: Docket No. [illegible] (Expedite)
Flattuck [illegible] Corporation
Garcia [illegible] Blue [illegible] Groups
McKinley County, New Mexico

Dear Mr. King:

Replying to your letter of December 1, 1953, with reference to the above application, we are enclosing two copies each of letters dated September 10 and 11 in response to Mr. Litterior's letter to Mr. Larrabee under date of September 3, and two copies of our current inquiry, all of which are self-explanatory.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (24B)

Enclosures 6

Concurrence:

J. H. Hedges (24B)
Director, Bureau of Mines

D. M. Larrabee (24B)
Director, Geological Survey

EMurphy/gla/db
12-14-53
cc to: Adm. Reading File
Operating Committee
Docket
Messrs: H. D. Keiser, Rm. 3641
A. P. Butler, Jr., Rm. 3212, GSA
Ellis
Murphy

R.C.S.
12-17-53

7/8/53 gla

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

W. P. MARSHALL, PRESIDENT

1201

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 8 - 1953

SYMBOLS

DL=Day Letter
NL=Night Letter
LT=Int'l Letter Telegram
VLT=Int'l Victory Ltr.

gin. Time of receipt is STANDARD TIME at point of destination

WP046 DL PD=CD NEWYORK NY 8 1055AME= 1953 SEP 8 PM 12 01

=C O MITTENDORF, ADMIN DEFENSE MINERALS EXPLORATION

ADMIN DEPT OF THE INTERIOR:

Cortland 7-5377 N.York N.Y.

=REFERRING TO YOUR SEPTEMBER THIRD LETTER REGARDING DOCKET NUMBER DMEA 2765 URANIUM NEW MEXICO WOULD APPRECIATE COLLECT TELEGRAM MENTIONING NAME ADDRESS ROOM NUMBER AND TELEPHONE NUMBER OF MEMBER OF YOUR STAFF WHO HAS CHARGE OF PROCESSING APPLICATION IN ORDER THAT WE MAY CONFER WITH HIM IN PERSON OR BY TELEPHONE=

THOMAS BARDON SHATTUCK DENN MINING CORP 120 BROADWAY NEWYORK NY=

2765= 120=(

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

STANDARD FORM NO. 64

9/10/53 gh

Office Memorandum • UNITED STATES GOVERNMENT

TO : E. Wm. Ellis, DMEA Member
Uranium Commodity Committee

DATE: Sept. 4, 1953

FROM : Arthur F. Butler, Jr., USGS Member
Uranium Commodity Committee

SUBJECT: Supplemental Comments by Field Team, DMEA Docket 2765 (uranium), Shattuck-Denn Mining Corp., Garcia and Blue Peak claims, McKinley Co., N. Mex.

The comments by examining members of the Field Team supplemental to their report of examination of the property identified in the subject above have been reviewed and discussed with H. D. Keiser, Bureau of Mines member, Uranium Commodity Committee, and J. O. Hosted, U. S. Atomic Energy Commission.

The supplemental comments by the Field Team resolve most of the points raised in my memorandum of July 7 to you. The Field Team recommends changing the area to be drilled so that it extends more nearly parallel to exposure of known mineralized ground rather than perpendicular to it, and have obtained the applicants consent to necessary sampling, non-core drilling, and deferment of Stage 2, driving drifts, until results of the drilling have been evaluated.

In discussions with Mr. F. Murphy of your office we have agreed that no commitment should be made to provide for Stage 2 in an initial contract, rather that, if worthwhile, it should be made the subject of an ammendment.

Recommendations

I recommend that the supplemental information furnished by the Field Team be made the basis of an agreement for furnishing the Government assistance for exploration by drilling, and that the proposed Stage 2 be omitted from such an agreement at this time, but subject to inclusion by ammendment if results in Stage 1 warrant.

Arthur F. Butler, Jr.

Copy to E. Wm. Ellis (2)

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

Sept. 14, 1953

E. Wm. Ellis, DMA Member
Uranium Commodity Committee
Arthur F. Butler, Jr., USGS Member
Uranium Commodity Committee
Supplemental Comments by Field Team, DMA Docket 2765 (uranium), Shattuck-Denn Mining Corp., Garcia and Blue Peak claims, McKinley Co., N. Mex.

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Copy to E. Wm. Ellis (2)

IN REPLY REFER TO:

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

Sept. 4, 1953

E. Wm. Ellis, DMEA Member
Uranium Commodity Committee
Arthur P. Butler, Jr., USGS Member
Uranium Commodity Committee
Supplemental Comments by Field Team, DMEA Docket 2765 (uranium), Shattuck-Denn Mining Corp., Garcia and Blue Peak claims, McKinley Co., N. Mex.

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Copy to E. Wm. Ellis (2)

FILE COPY
SURNAME:

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

Murphy
Butler
Keiser
McKane
Rubin

SEP 3 1953

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, N. Y.

Re: Docket No. DMEA-2765 (Uranium)
McKinley County, New Mexico

Dear Mr. Bardon:

This refers to your letter dated August 19 addressed to Mr. W. H. King, (DMEA, Region IV Executive Officer) and to your letter dated August 24, 1953, addressed to me, concerning your application for an exploration project contract.

The letter dated August 19 submitted documents entitled "Option" and "Amendment to Mining Lease" which purport to reinstate your Company's lease dated March 20, 1952. However, our review of these documents indicates that you do not have a present lease but rather the right to acquire one under the Option, if you exercise your Option rights prior to April 1, 1954. Therefore, prior to entering into any contract, we will require evidence that your option rights have been exercised and that your lease is in effect.

The objective of the Defense Minerals Exploration Administration is the encouragement of exploration for unknown or undeveloped sources of strategic or critical minerals. In pursuing this objective, the work under an exploration project may not go beyond a reasonable delineation and sampling of the ore, and may not include work prosecuted primarily for mining or preparation for mining. Our review of your application indicates that the proposal for 5550 feet of drifts and crosscuts amounts to a development, and we are, therefore, unable to approve your proposed exploration program in its present form. However, in lieu of the program which you have proposed, we suggest a program for your property, somewhat as follows:

STAGE I - to consist of non-core drilling 33 primary holes and 13 secondary holes to an approximate depth of 265 feet each or a total of 12,190 feet of drilling; and sampling drill cuttings in each hole from the depth of 145 feet to the bottom. Myers' bid for this type of drilling is $1.28 per foot or approximately $15,603.00 for 12,190 feet of drilling.

R.C.G.
9-3-53

Other costs incidental to drilling - (Estimated time - 3 months).

Supervision - 3 months @ $600.00/mth	$1,800.00
Drill site preparation	850.00
Sampling & Assaying	1,000.00
Miscellaneous expense	250.00
Total additional cost	$3,900.00
Average cost per foot for 12,190 feet of drilling	$ 0.32

The unit cost plus the estimated incidental costs would constitute an estimated cost of $1.60 per foot of drilling, or an estimated total cost for Stage I of $19,504.00.

STAGE II - Additional work would be authorized only after the Stage I work was completed and after the Field Team conferred with the Atomic Energy Commission's sub-office concerning the amount of additional work that would be justified for this stage. If, in the opinion of the Government additional work would be warranted, the contract might be amended to provide for it, that is, providing authority existed at that time for Defense Minerals Exploration Administration to execute such an amendment.

We have detailed this proposed alternative program in order to expedite your application. If you agree to the program as outlined and will forward 2 copies of an existing lease on the subject property, we will then proceed to draft a contract.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

FMMurphy/HCRubin/db
9-2-53
cc to: Adm. Reading File
Docket
Messrs. H.D.Kaisey, Rm. 3641
A.P.Butler, Jr., Rm. 3206, OSA
Ellis
Murphy
Rubin
DMEA Field Team, Region IV (2)

8/26/53 gla

Department of the Interior
Defense Minerals Administration
RECEIVED
AUG 26 1953

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

August 24, 1953

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

Re: Docket DMEA-2765 (Uranium
McKinley County, New Mexico

Dear Sir:

Mr. W. H. King, Executive Officer at the Denver office of DMEA, has written us under date of August 21 that certain data have been forwarded to the Washington office of DMEA for use in processing a contract.

When a contract has been drafted, please send a copy of the draft to us at the above address.

Yours very truly,

SHATTUCK DENN MINING CORPORATION

By Thomas Bardon
President

TB:twp

TB

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

224 New Customhouse
Denver 2, Colorado

August 21, 1953

Memorandum

To: C.O. Mittendorf, Administrator, DMEA

From: DMEA Field Team, Region IV

Subject: Docket No. DMEA-2765 (Uranium), Shattuck Denn Mining Corp., McKinley County, New Mexico

This is in reply to your letter of July 16 and enclosed memoranda from the members of the Uranium Commodity Committee.

Enclosed are four copies of a supplemental report by L.L. Farnham and A.F. Shride, in which we concur, in answer to the questions you have raised.

Also enclosed is a copy of a letter dated August 19, 1953 from Thomas Bardon, President of the Shattuck Denn Mining Corporation, two photostatic copies of the Option with attached Amendment to the Mining Lease, and one photostatic copy of the Owner's Consent to Lien.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-31-53
(date)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 24 1953

MINING DIVISION
REGION IV

August 17, 1953

Memorandum

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

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Docket DMEA-2765, Shattuck Denn Mining Corp.'s Uranium Property, McKinley County, N. Mex.

In regard to your memorandum of July 22 and later correspondence, concerning the proposed contract for the above company, we now understand that the company has renewed its lease to the property in McKinley County, N. Mex., so are enclosing original and 9 copies of a memorandum by L. L. Farnham of the Bureau of Mines and A. F. Shride of the Geological Survey. R. F. Robinson of the Geological Survey has sent a copy of this report to Mr. Koschmann.

Walter R. Storms

Walter R. Storms

CC W. H. King (9)
DMEA-2765
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
8-31-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O. Box 4126, University Station
Tucson 5, Arizona

August 14, 1953

Memorandum

To: Field Team, Region IV

From: L. L. Farnham and A. F. Shride

Subject: Supplemental Comments, DMEA-2765 (Uranium), Shattuck-Denn Mining Corporation, Garvin and Blue Peak claims, McKinley County, New Mexico

As suggested by the Field Team's correspondence with Mr. Barden of the Shattuck-Denn Mining Corporation, comment has been withheld on the Commodity Committee reviews until the Corporation negotiated a new lease and indicated interest in continuing processing of the application. Mr. T. W. Newell, Assistant Vice-President of the Corporation, orally stated to Tucson personnel on August 7 that a renegotiated lease satisfactory to all parties had been signed on July 30 and forwarded to Mr. Barden, with signed subordination agreements. This lease terminates on April 1, 1954. The following comments on memoranda by Messrs. Butler and Kaiser, should be sufficient to complete Field Team action.

The writers are in complete concurrence with the suggestions proposed by Messrs. Butler and Kaiser.

Distribution of drill holes

The drilling was not favorably proposed by the applicant and the grid layout shown in the original report was that preferred

Reviewed by
DMEA OPERATING COMMITTEE
8-31-53
(date)

by the applicant. Mr. Newell has now agreed to a modification of the area of drilling, but not to an increase in drill footage. The enclosed map shows a revised 200-foot grid pattern which consists of 33 primary holes, totaling by the applicant's estimate of 265 feet average depth, 8745 feet of drilling. An area 1700 by 900 feet, covering the southern parts of Blue Peak claims 2, 3, and 4, will be tested by drilling. This primary grid leaves (of the proposed 12,190 feet of drilling, using the 265-feet average depth) 13 holes totaling 3445 feet for offset drilling. It is the examiners belief, as noted in the original report, that an allowable maximum of 12,190 feet of drilling will allow an excess of 1800 to 2000 feet of drilling. This footage can be used if necessary for drilling 4 to 10 additional offset or primary holes in addition to the total of 46 holes visualized by the applicant. Thus the above redistribution of the drill pattern and the footage that likely will be in excess should provide the additional offset holes suggested in page 2 of Mr. Butler's memorandum. The writers suggest that the drill program layout be flexible, and that the layout on the attached map is approximate.

Appropriate sampling

Mr. Newell has agreed to take appropriate samples from the drill cuttings and have analyses made. The Grants AEC staff has been contacted again by Farnham. Because of the press of work, that group cannot definitely commit their personnel and equipment

to radiometric logging of the proposed holes. Perhaps some discussion of this problem with the AEC can be made at the Commodity Committee level.

Non-core drilling

It was the intent in the original report that non-core drilling, and appropriate sampling of the cuttings, be the method of drill exploration. This is mutually agreed with the applicant's agent. More information has accumulated to the effect that this method of drilling has proved adequate in the Grants area. The Myers Drilling Company will be available during the next few weeks.

Stage 2 timing

Although not favorably inclined toward deferring Stage 2 (Drifting) until Stage 1 (Drilling) is completed, this timing is acceptable to Mr. Newell. The writers prefer this arrangement, and concur with the Commodity Committee recommendation that Stage 2 work should be started only after Stage 1 results have been thoroughly evaluated.

L. L. Farnham
U. S. Bureau of Mines

A. F. Shride
A. F. Shride
U. S. Geological Survey

8/26/53 gla

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

224 New Customhouse
Denver 2, Colorado

August 21, 1953

Memorandum

To: C.O. Mittendorf, Administrator, DMEA

From: DMEA Field Team, Region IV

Subject: Docket No. DMEA-2765 (Uranium), Shattuck Denn Mining Corp., McKinley County, New Mexico

This is in reply to your letter of July 16 and enclosed memoranda from the members of the Uranium Commodity Committee.

Enclosed are four copies of a supplemental report by L.L. Farnham and A.F. Shride, in which we concur, in answer to the questions you have raised.

Also enclosed is a copy of a letter dated August 19, 1953 from Thomas Bardon, President of the Shattuck Denn Mining Corporation, two photostatic copies of the Option with attached Amendment to the Mining Lease, and one photostatic copy of the Owner's Consent to Lien.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

JFB

Shadduck Mining Company holds an option to enter into a certain lease dated April 1, 1953, (of which we do not have a copy), provided that the option is exercised prior to April 1, 1954.

As the Company does not hold a lease, but only the option to enter into one, it is required that we be furnished with a copy of a valid existing lease prior to the execution of a contract.

HGH

COPY

SHATTUCK DENN MINING CORPORATION
120 Broadway
New York 5, New York

August 19, 1953

Mr. W.H. King, Executive Officer
DMEA Field Team, Region IV
United States Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Re: Docket DMEA-2765

Dear Sir:

We are enclosing herewith three photostatic copies of the Option with Attached Amendment to Mining Lease executed by the owners of the property which is covered by our application for an exploration loan and which has your docket number mentioned above.

In the opinion of our attorney, Mr. Charles E. McDaniel, Prescott, Arizona, this reestablishes our lease on this property in good standing. The underlying or main lease to which the enclosed amendment refers was filed in your Tucson office when our application was originally submitted.

Also enclosed herewith is a photostatic copy of the Owner's Consent to Lien. We have the triplicate originals of this consent in our possession and will forward them to you if you so request. It is our understanding, however, that they are ordinarily not filed with you until the application has been approved and the amount of the Government's contribution can be inserted in paragraph 2.

If any other documents or information are necessary kindly so inform us.

We request that our application be now restored to an active status and expedited insofar as possible.

Yours very truly,

SHATTUCK DENN MINING CORPORATION

By /s/ Thomas Bardon
President

TB:twp
Enc.

Mining Division
Date Rec'd.
AUG 19 1953
BUREAU OF MINES
DenTucson, Colorado ARIZONA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

August 17, 1953

Memorandum

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

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Docket DMEA-2765, Shattuck Denn Mining Corp.'s Uranium Property, McKinley County, N. Mex.

In regard to your memorandum of July 22 and later correspondence, concerning the proposed contract for the above company, we now understand that the company has renewed its lease to the property in McKinley County, N. Mex., so are enclosing original and 9 copies of a memorandum by L. L. Farnham of the Bureau of Mines and A. F. Shride of the Geological Survey. R. F. Robinson of the Geological Survey has sent a copy of this report to Mr. Koschmann.

Walter R. Storms

Walter R. Storms

CC W. H. King (9)
DMEA-2765
DF

FOR VICTORY
BUY UNITED STATES SAVINGS BONDS AND STAMPS

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O. Box 4126, University Station
Tucson 5, Arizona

Defense Minerals Administration
RECEIVED
AUG 24 1953

August 14, 1953

Memorandum

To: Field Team, Region IV

From: L. L. Farnham and A. F. Shride

Subject: Supplemental Comments, DMEA-2765 (Uranium), Shattuck-Denn Mining Corporation, Garcia and Blue Peak claims, McKinley County, New Mexico

As suggested by the Field Team's correspondence with Mr. Bardon of the Shattuck-Denn Mining Corporation, comment has been withheld on the Commodity Committee reviews until the Corporation negotiated a new lease and indicated interest in continuing processing of the application. Mr. T. W. Newell, Assistant Vice-President of the Corporation, orally stated to Tucson personnel on August 7 that a renegotiated lease satisfactory to all parties had been signed on July 30 and forwarded to Mr. Bardon, with signed subordination agreements. This lease terminates on April 1, 1954. The following comments on memoranda by Messrs. Butler and Keiser, should be sufficient to complete Field Team action.

The writers are in complete concurrence with the suggestions proposed by Messrs. Butler and Keiser.

Distribution of drill holes

The drilling was not favorably proposed by the applicant and the grid layout shown in the original report was that preferred

by the applicant. Mr. Newell has now agreed to a modification of the area of drilling, but not to an increase in drill footage. The enclosed map shows a revised 200-foot grid pattern which consists of 33 primary holes, totaling by the applicant's estimate of 265 feet average depth, 8745 feet of drilling. An area 1700 by 900 feet, covering the southern parts of Blue Peak claims 2, 3, and 4, will be tested by drilling. This primary grid leaves (of the proposed 12,190 feet of drilling, using the 265-foot average depth) 13 holes totaling 3445 feet for offset drilling. It is the examiners belief, as noted in the original report, that an allowable maximum of 12,190 feet of drilling will allow an excess of 1000 to 2000 feet of drilling. This footage can be used if necessary for drilling 4 to 10 additional offset or primary holes in addition to the total of 46 holes visualized by the applicant. Thus the above redistribution of the drill pattern and the footage that likely will be in excess should provide the additional offset holes suggested in page 2 of Mr. Butler's memorandum. The writers suggest that the drill program layout be flexible, and that the layout on the attached map is approximate.

Appropriate sampling

Mr. Newell has agreed to take appropriate samples from the drill cuttings and have analyses made. The Grants AEC staff has been contacted again by Farnham. Because of the press of work, that group cannot definitely commit their personnel and equipment

to radiometric logging of the proposed holes. Perhaps some discussion of this problem with the AEC can be made at the Commodity Committee level.

Non-core drilling

It was the intent in the original report that non-core drilling, and appropriate sampling of the cuttings, be the method of drill exploration. This is mutually agreed with the applicant's agent. More information has accumulated to the effect that this method of drilling has proved adequate in the Grants area. The Myers Drilling Company will be available during the next few weeks.

1.28 drilling
.32
1.60

Stage 2 timing

Although not favorably inclined toward deferring Stage 2 (Drifting) until Stage 1 (Drilling) is completed, this timing is acceptable to Mr. Newell. The writers prefer this arrangement, and concur with the Commodity Committee recommendation that Stage 2 work should be started only after Stage 1 results have been thoroughly evaluated.

L. L. Farnham
U. S. Bureau of Mines

A. F. Shride
U. S. Geological Survey

FILE COPY
SURNAME:

Murphy
Ellis

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

AUG 2 5 1953

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, N. Y.

Re: Docket No. DMEA-2765 (Uranium)
McKinley County, New Mexico

Dear Mr. Bardon:

Your letter dated August 19, 1953, with the enclosed copy of your letter to Mr. King, requesting that the above docketed application be restored to an active status, is acknowledged.

In a letter from this office to Mr. King, dated July 16, 1953, it was suggested that he contact Mr. Newell of your Corporation to discuss certain proposals which were recommended by this Agency's Engineers and Geologists. When we receive the results of this discussion from Mr. King and the documents which you forwarded to him, we will continue to process your application.

Sincerely yours,

C. O. Mittendorf

Administrator

R.Murphy/db
8-24-53
cc to: Adm. Reading File
Docket
Messrs: H.D.Reiser, Rm. 3641
A.P.Butler, Jr., Rm. 3206, GSA
Ellis
Murphy
DMEA Field Team, Region IV (2)

HHR
8-25-53

8/21/53 gla

Department of the Interior
Defense Minerals Administration
RECEIVED
AUG 20 1953

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

August 19, 1953

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

Re: Docket DMEA-2765 (Uranium)
McKinley County, New Mexico

Dear Sir:

Enclosed herewith is a copy of the letter we are writing today to Mr. King, the Executive Officer of your Denver office in regard to the application we have previously filed under the above mentioned docket number. We understand that all or most of the papers relating to this application are now in Washington and we would appreciate anything you can do to expedite action upon the application.

Yours very truly,

SHATTUCK DENN MINING CORPORATION

By Thomas Bardon
President

TB:twp
Enc.

TB

SMITHER DEVELOPMENT CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

August 19, 1953

Mr. R. H. King, Executive Officer
DMEA Field Team, Region IV
United States Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Re: Docket DMEA-2765

Dear Sir:

We are enclosing herewith three photostatic copies of the Option with Attached Amendment to Mining Lease executed by the owners of the property which is covered by our application for an exploration loan and which has your docket number mentioned above.

In the opinion of our attorney, Mr. Charles A. McDaniel, Prescott, Arizona, this reestablishes our lease on this property in good standing. The underlying or main lease to which the enclosed amendment refers was filed in your Tucson office when our application was originally submitted.

Also enclosed herewith is a photostatic copy of the Owner's Consent to Lien. We have the triplicate originals of this consent in our possession and will forward them to you if you so request. It is our understanding, however, that they are ordinarily not filed with you until the application has been approved and the amount of the Government's contribution can be inserted in paragraph 2.

If any other documents or information are necessary kindly so inform us.

We request that our application be now restored to an active status and expedited insofar as possible.

Yours very truly,

SMITHER DEVELOPMENT CORPORATION

By [illegible] SMITHER

President

[illegible]ttwp
[illegible]

8/10/53 glu

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

224 New Customhouse
Denver 2, Colorado

August 4, 1953

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: Docket DMEA-2765

Dear Mr. Bardon:

We will hold your application for exploration assistance, Docket DMEA-2765, on our inactive list as requested in your letter dated July 30, 1953.

We are not aware of any deficiencies in your application. However, our Washington office has requested additional information from our field office.

When you notify us that you have obtained a new lease we will continue to process your application.

Very truly yours,

for John F. Shaw

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

JFS:jp
cc Subject
Chron
WRStorms)
RFRobinson)w/copy incoming ltr
COMittendorf)

224 New Customhouse
Denver 2, Colorado

August 4, 1953

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: Docket DMEA-2765

Dear Mr. Bardon:

We will hold your application for exploration assistance, Docket DMEA-2765, on our inactive list as requested in your letter dated July 30, 1953.

We are not aware of any deficiencies in your application. However, our Washington office has requested additional information from our field office.

When you notify us that you have obtained a new lease we will continue to process your application.

Very truly yours,

for John F. Shaw

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

JFS:jp
cc Subject
Chron
WRStorms
RFRobinson
COMittendorf
w/copy incoming ltr

COPY

SHATTUCK DENN MINING CORPORATION
120 Broadway
New York 5, N. Y.

July 30, 1953

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
United States Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Dear Mr. King:

We have your letter of July 28 referring to DMEA 2765 relating to our uranium operation near Grants, New Mexico. Mr. McDaniel's advice to Mr. Sterns at your Tucson office is correct.

Our lease on the Grants property expired on July 1. We had previously expected no particular difficulty in renewing it but at the last moment the owners made demands which we considered exorbitant and unreasonable. Since July 1 we have received information to the effect that the lessors were disappointed at our refusal to meet their demands and we have now been assured by some of them that a more reasonable arrangement is possible. We are pursuing this subject and will inform you if an agreement is reached.

In the meantime, however, we would appreciate your holding the application on your inactive list. As soon as possible someone representing our company will confer with your Tucson office for the purpose of correcting any deficiencies which Washington may have found in our application.

I might add that we have heard nothing whatever from the Washington office of DMEA. Through the Atomic Energy Commission we have informally learned that your Washington office regarded our application as deficient in some respects but we have no further information and do not know what corrections are desired. I hope, however, that Mr. Sterns will be able to supply that information.

Yours very truly,

/s/ Thomas Barden

President

TB:twp

COPY

SHATTUCK DENN MINING CORPORATION
120 Broadway
New York 5, N. Y.

July 30, 1953

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
United States Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Dear Mr. King:

We have your letter of July 28 referring to DMEA 2765 relating to our uranium operation near Grants, New Mexico. Mr. McDaniel's advice to Mr. Storms at your Tucson office is correct.

Our lease on the Grants property expired on July 1. We had previously expected no particular difficulty in renewing it but at the last moment the owners made demands which we considered exorbitant and unreasonable. Since July 1 we have received information to the effect that the lessors were disappointed at our refusal to meet their demands and we have now been assured by some of them that a more reasonable arrangement is possible. We are pursuing this subject and will inform you if an agreement is reached.

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Yours very truly,

/s/ Thomas Bardon

President

TB:twp

913

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

224 New Customhouse
Denver 2, Colorado

July 28, 1953

Airmail

Mr. Thomas Bardon
President,
Shattuck Denn Mining Company
120 Broadway
New York 5, New York

Dear Mr. Bardon:

We have a letter from Mr. W. R. Storms, who has charge of our Tucson office, stating that Mr. Charles McDaniel, Attorney for Shattuck-Denn, Prescott, Arizona, informed one of our engineers that Shattuck Denn was unable to renew its lease on uranium land in McKinley County, New Mexico. Therefore, the application, Docket DMEA 2765, was being withdrawn by your company.

In case this information is correct, we could save valuable time by placing your application on the inactive list. Please advise us.

Very truly yours,

W. H. KING

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

cc: T. W. Newell
LaCourt Hotel
Grand Junction, Colo.

Mittendorf
Storms
Koschmann (2)
Sub
Contract

8/5/53 - dl.

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

224 New Customhouse
Denver 2, Colorado

July 28, 1953

Airmail

Mr. Thomas Bardon
President,
Shattuck Denn Mining Company
120 Broadway
New York 5, New York

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In case this information is correct, we could save valuable time by placing your application on the inactive list. Please advise us.

Very truly yours,

W. H. KING

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

cc: T. W. Newell
LaCourt Hotel
Grand Junction, Colo.

Mittendorf
Storms
Koschmann (2)
Sub
Contract

FILE COPY
SURNAME:
Docket.
Murphy
Ellis
Selfridge
Mattendorf

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

JUL 1 6 1953

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

Re: Docket No. DMEA-2765 (Uranium)
Shattuck Denn Mining Corporation
McKinley County, New Mexico

Dear Mr. King:

Enclosed are copies of memoranda from the members of the Uranium Commodity Committee. Mr. H. D. Keiser's memorandum dated July 6, 1953, and Mr. A. P. Butler's memorandum, dated July 7, 1953, contain comments and recommendations pertinent to the exploration program outlined by the Field Team for the Garcia and Blue Peak claim groups of the Shattuck Denn Mining Corporation. It is suggested you study these proposals and advise us of your recommendation.

You will note that Mr. Butler recommends drifting only to the extent necessary to serve clearly defined exploration objectives.

Mr. Newall of the Shattuck Denn Mining Corporation has inferred that his company would not be interested in a DMEA Contract unless a certain amount of drifting was included with drilling. In view of this statement, it is suggested that you discuss this subject with him before you submit a new proposal to Washington based on the memoranda from the Commodity members.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

MDM 7-16-53

Enclosures:

APPROVED:

J. H. Hedges
Member, Bureau of Mines (JHH)

A. R. Kinkel, Jr.
Member, Geological Survey (ARK)

FMMurphy/gla/db
7-13-53
cc to: Adm. Reading File
Operating Committee
Docket
Messrs: H.D.Keiser, Rm. 3641
A.P.Butler, Rm. 3206, GSA
Ellis
Murphy

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

RECEIVED

1953

TO : E. Wm. Ellis, DMEA Member
Uranium Commodity Committee

DATE: July 7, 1953

FROM : Arthur P. Butler, Jr., USGS Member, Uranium Commodity Committee

SUBJECT: Field Team Report, DMEA Docket 2765 (uranium) Shattuck Denn Mining Corp., applicant, Garcia and Blue Peak claim groups, Sec. 24, T. 13 N., R. 10 W., McKinley Co., New Mex.

The Field Team Report concerning exploration on the property identified in the subject above has been reviewed and discussed with H. D. Keiser, Bureau of Mines member, Uranium Commodity Committee, and J. O. Hosted, U. S. Atomic Energy Commission.

Proposal

The examining members of the Field Team consulted with the applicant and members of the staff of the Atomic Energy Commission's Grants, N. Mex., sub-office and present in their report a proposal for exploration modified from the applicant's original proposal. Under the plan recommended by the Field Team, the applicant's property would be explored in two stages as follows:

Stage 1. 12,190 feet of drilling in 46 holes on a 200 foot grid pattern.
Stage 2. 3,400 feet of drifting or drifting and cross cutting combined.

Cost of drilling of the type recommended by the Field Team would range from about $19,550 to about $31,700, depending on whether core or cuttings would be used for samples. Cost of drifting would be $102,000.

Starting of Stage 2 would be contingent on favorable results in Stage 1 that would indicate a target for Stage 2 work but Stage 2 could be started before completion of Stage 1.

Comment

Uranium ore occurs on the applicants property in the lower part of the Bursby Basin member of the Morrison formation. From 6,000 to 7,000 tons of ore averaging 0.18 percent U_3O_8 have been produced from ore bodies ranging from 2 to 11 feet in thickness, 10 to 30 feet in width, and 30 to 100 feet in length. Judging from the outline of the underground workings, the ore bodies were concentrated in an area of about 350 by 150 feet on the Garcia claim.

The distribution and shape of the workings suggests that the group of ore bodies is elongate in and ENE direction. Other evidence of a pattern of distribution or relation to geologic features that might guide exploration is lacking.

The production record, size of ore bodies, and the presence of radioactive rock at intervals for 3,000 feet along the outcrop of the Brushy Basin member suggest that exploration for other concealed ore bodies in nearby ground would be a justifiable risk. The drilling recommended by the Field Team examiners is a suitable mode of exploration. There is, however, no geologic evidence to indicate that drilling should be carried out within a rather narrow belt extending 2,400 feet northward from the workings. This is recognized in the report, which states (p. 8) "The holes could just as well be drilled on an east-west grid to cover the southern parts of the Blue Peak Nos. 1 and 2 claims" or on a grid paralled to the cliff of Dakota sandstone. In the absence of a compelling geologic reason for selecting the general area of drilling shown on the map and because ore found near the southern limit of the outcrop would be more accessible and more easily mined than ore farther to the north away from the outcrop, a revision of the general area of drilling to provide a greater east and west extent within a distance of about 1,000 feet north of the present workings appears more desirable. Specifically it is suggested that the proposed grid pattern stand but that the distribution of the holes be changed by eliminating all holes more than 1,000 feet north of the present workings and substituting other holes so that the area to be drilled would extend from the extreme southeast part of the Blue Peak No. 5 claim and northern part of the Garcia No. 2 claim on the west to the southern part of the Blue Peak No. 2 claim on the east. If results of drilling within this general area suggested that ore might be found north of this proposed area this contingency could be met by modifying any contract entered into or by advising the applicant that a new proposal would be considered.

The drifting and cross cutting proposed as Stage 2 would be justifiable only to the extent that it served clearly defined exploration objectives, such as accurately determining variations in thickness or ore across the general trend of elongate ore bodies, or of defining more precisely the limits of ore bodies indicated by drilling. Provision for more drilling of more offset holes than proposed by the Field Team might eliminate the need for some of the proposed drifting.

As economical exploration by drifting requires definition of the position of the target to be explored, and as the best plan for exploration can be drawn up only after the position of all possible targets are known, results of the drilling must be appraised before the amount and location of Stage 2 work can be decided.

Recommendations

I recommend

1) That the application be returned to the Field Team for reconsideration of the general area of drilling, as discussed under comments above; the desirability of more offset drill holes than now proposed; and presentation of a definite proposal on distribution of holes that can be used in preparing a contract

2) That a commitment be obtained from the applicant that he will take samples at appropriate points in the course of drilling, have analyses made of those samples, and supply to the Field Team the results thereof, together with such additional exploration data as may be necessary for interpreting the results of the sampling.

3) That Stage 2 work be started only after Stage 1 work is completed, and after the Field Team has had the opportunity to confer with members of the staff at the Atomic Energy Commission's Grant's sub-office concerning the plan and amount of work that would be justified in that stage and to make a recommendation thereon.

I concur with other recommendations made by Mr. H. D. Keiser, Bureau of Mines concerning better definition of the way in which drilling is to be done and arrangements to have the Atomic Energy Commission make radioactivity logs of the holes.

Copy to E. Wm. Ellis (2)

Arthur P. Butler, Jr.

7-7-53 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL - 7 1953

July 6, 1953

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4640

From: H. D. Keiser, Bureau of Mines Member
Uranium Commodity Committee

Subject: Final Report, DMEA Docket 2765, Shattuck Denn Mining Corporation, McKinley County, New Mexico

I have reviewed the subject report and discussed it with Arthur P. Butler, Geological Survey Member, and Joseph O. Hosted, representative of the Atomic Energy Commission.

It is recommended that the report be returned to the Field Team for revision with a request that an effort be made to determine definitely, after consultation with the AEC staff at Grants, N. Mex., the feasibility of noncore drilling under Stage I, assuming that the AEC would agree to radiometrically log such drill holes promptly and report the results promptly to the Field Team and applicant. The amount involved under Stage I should then be revised in accord with the determination.

It is further recommended that the decision as to what work shall comprise Stage II be determined by the Field Team on completion of Stage I, after study of the results thereof, and after discussion of those results with the AEC staff at Grants, N. Mex., the applicant being required under the contract to record and submit complete exploration data under Stage I as required by the Field Team.

The subject report has been forwarded to the Chief, Minerals Division, Bureau of Mines, in accord with the routing slip attached thereto.

H. D. Keiser

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 6/26/53

REFERRED TO: Code 700, Rm. 4640

DMEA-2765

1. Mr. Ellis
2.
3.
4.

FOR:

..... Action	..... Recommendation
..... Approval	..... Record
..... Comment	..... of .....
..... Conference	..... Referring
..... Consideration	..... to .....
..... Filing	..... Reply for signature of .....
..... Instructions	
..... Investigation	..... Rewriting
..... Initials	..... Signature
..... Mailing	..... Suggestions
..... Previous correspondence	..... Your information

1st copy

REMARKS: See draft of letter to Mr. Bardon. Also, this was previously handled by Mr. Schmidt. Do you want to reassigned it for further action, once the commodity comments are received? (over)

Check (X) before the items needing attention.

Initials of sender.

16—63815-1

Application was for amount totalling $197,851.43 -- much smaller project recommended. Page 1 of the report explains original plan of exploration is not warranted.

After lengthy discussions, program was revised by the company.

Also, please note memo Raymond F. Robinson, USGS to Koschman dated June 12, re sending 3 sets of subordination agreement forms to attorney for applicant in Prescott, Arizona.

~~Unkixxxx~~ There is nothing said by Field Team as to whether these forms were sent to the attorney.

Do you think we should write Region IV immediately to find out about them?

gla

To be noted after comments are recd. from Commodity members.
per E.W.E.

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

July 6, 1953

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4640

From: H. D. Keiser, Bureau of Mines Member
Uranium Commodity Committee

Subject: Final Report, DMEA Docket 2765, Shattuck Denn Mining Corporation, McKinley County, New Mexico

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The subject report has been forwarded to the Chief, Minerals Division, Bureau of Mines, in accord with the routing slip attached thereto.

Signed
H. D. Keiser

HDKeiser:jj

Copy to: Minerals Division
Rare and Precious Metals Branch
J. O. Hosted (2)
H. D. Keiser
F I L E S

FILE COPY
SURNAME:

Docket.
Ellis
Uranium

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

JUN 30 1953

Mr. Thomas Pardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: Docket No. DMEA-2765 (Uranium)
McKinley County, New Mexico

Dear Mr. Pardon:

Referring to our telephone conversation on June 24, 1953, regarding your above-captioned proposed exploration project, this is to advise that we have received the report of the Field Team.

As explained to you in our conversation, this report has been submitted to the commodity specialists for review. We assure you that further action in this matter will be expedited to the best of our ability.

Sincerely yours,

SIGNED

E.W.
6-30-53

Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division

EWEllis/db
6-29-53
cc to: ADm. Reading File
Docket
Messrs: A.P.Butler, Jr., Rm. 3206, OSA
H.D.Keiser, Rm. 3641
Ellis
DMEA Field Team, Region IV (2)

6/26/53 gla

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

224 New Customhouse
Denver 2, Colorado

June 23, 1953.

Department of the Interior
Defense Minerals Administration
RECEIVED
JUN 23 1953

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2765 (Uranium), Shattuck Denn Mining Corporation, McKinley County, New Mexico.

Enclosed are the original and three copies of the report pertaining to the above application.

We recommend exploration aid based on a short form contract to allow for the work to be done in two stages. Stage I to consist of a maximum of 12,190 feet of drilling at a cost not to exceed $31,693.00. Stage II to be contingent upon the results of Stage I and to consist of drifting and crosscutting.

W. H. King
W. H. King

E. N. Harshman
E. N. Harshman
For A. H. Koschmann

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

June 23, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2765 (Uranium), Shattuck Bent Mining Corp., McKinley County, New Mexico.

Enclosed are eleven copies of the final engineering report on the subject docket.

The applicant originally requested $197,851.00 and later revised it to $220,870.00 to core drill, drift and crosscut.

The examining engineer recommends a maximum of $121,503.00 to explore in two stages. Stage I to consist of drilling 12,190 feet at a total cost of $19,503.00. Stage II to be contingent upon the results of Stage I and to consist of drifting and crosscutting a maximum of 3,400 feet at a total cost of $102,000.00.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

MINING DIVISION
REGION IV

June 19, 1953

Memorandum

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

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Report on Docket OTLA-2765, Chattuck Penn Mining Corp.'s Uranium Claims, McKinley County, N. Mex.

Enclosed are original and 10 copies of an Engineering Report on the above property by L. L. Farnham of the Bureau of Mines. A Geological Report already has been submitted by the Geological Survey.

As there seems to be a very good chance of discovering a substantial amount of uranium ore by this exploratory work, the examiners recommend that a loan be granted the Chattuck Penn Mining Corp. I concur with their recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

cc W. A. King (10)
M. F. Robinson
OTLA-2765
RV

WRStorms:frj

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

200 New Customhouse
Denver 2, Colorado

June 15, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2765, Shattuck Denn Mining Corporation, Garcia and Blue Peak Groups, McKinley County, New Mexico. Uranium.

Enclosed are the original and 10 copies of the geologic report by A. F. Ahrida of the U. S. Geological Survey covering the above docket.

It has been recommended that the loan be approved.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O.Box 4186, University Station
Tucson 5, Arizona

June 12, 1953

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: Raymond F. Robinson, Tucson, Arizona

Subject: Geologic Report, DMEA 2765, Shattuck Denn Mining Corp., Garcia and Blue Peak Groups, McKinley County, New Mexico (Uranium)

Enclosed are the original and 10 copies of the above report by A. F. Shride of the Geological Survey. Geological Survey personnel were responsible for the favorable recommendation of exploration. Bureau personnel did not participate in the examination, but did enter into discussions of costs and methods with the applicant's agent, which is about all that can be done for an engineering report. As this report was going out, we heard that the Bureau's report was returned for physical examination of the property by Bureau personnel. Therefore, we are holding the brochure and supplemental data for use of the Bureau in preparing their report.

It may take some time to get subordination agreements. Therefore, if the Field Team is agreeably disposed toward the recommended exploration, it is suggested that 3 sets of subordination forms be forwarded at an early date to the attorney for the applicant:

Mr. Charles N. McDaniel
P. O. Box 553
Prescott, Arizona

No forms are available in this office. We understand that the applicant prefers that Mr. McDaniel handle legal aspects of this application - rather than the New York office of the Shattuck Denn Corporation, as suggested in Mr. Johnson's letter.

Raymond F. Robinson

Raymond F. Robinson
Acting District Supervisor
Arizona-New Mexico

Enclosures 11

GARCIA AND ELDER PEAK GROUPS
SHATTUCK DENN MINING CORPORATION
MCKINLEY COUNTY, NEW MEXICO
DMEA 2765

URANIUM

Geology

By
A. F. Shride
Geologist, U. S. Geological Survey

GARCIA AND BLACK PEAK GROUPS
SHATTUCK DENN MINING CORPORATION
MCKINLEY COUNTY, NEW MEXICO
DMEA 2765

URANIUM

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Figure 1 - Claim Map of Section 24, T. 13 N., R. 10 W., Showing Tentative Location of Proposed Drilling, DMEA 2765	2

INTRODUCTION

The area in Section 24, T. 13 N., R. 10 W., McKinley County, New Mexico, proposed for exploration by the Shattuck Denn Mining Corporation appears to be worthwhile for Defense Minerals Exploration Administration loan participation. However, the original plan of exploration is not warranted on the basis of available information. Discussion on the site and correspondence with members of the Grants, New Mexico Atomic Energy Commission staff indicates that this would also be the opinion of that group. In light of the concurrence by the examiners (A. F. Shride and R. B. Raup of the Geological Survey) and the Grants A.E.C. staff lengthy discussions of the various aspects of an exploration program were made with Mr. T. W. Newell, Assistant Vice-President of the Corporation. As a result of these discussions and further correspondence a revised proposal was presented by the Shattuck Denn Mining Corporation. This proposal, which requests a loan on a short form contract, was far from complete or satisfactory, therefore further discussions were held in an attempt to get adequate data. Plans by the Corporation for the mechanical aspects of exploration, sampling, mapping, collecting of drill data, and financing of the applicant's share of the costs, etc. were incompletely formulated. In addition, data as to ownership of the properties were incompletely explained. As a result this application has been extremely difficult to process. Because of the applicant's inability to present a complete program, it has been necessary to put together details of an exploration program from discussion with the applicant's agent and to tie loose details together without benefit of more than a generalized concurrence by the applicant.

GEOLOGY

Stratigraphy and Structure

Carnotite-type uranium ores in the Garcia-Blue Peak properties occur in sandstone of the Brushy Basin shale member of the Morrison formation. Stratigraphy pertinent to this application can be summarized as follows:

Formation	Thickness in Feet
Dakota sandstone	80-100
Morrison formation	
Brushy Basin shale member (bentonic mudstone portion)	65
Brushy Basin shale member (?) (sandstone portion)	50+
Westwater Canyon sandstone	20
Total thickness of pertinent stratigraphic units	215-235 feet
Recapture shale member	?

The above data was furnished by the Grants office of the A.E.C. and is believed to be the most reliable information available. It should be noted that the applicant believes the stratigraphic section above the Recapture shale member to total 250-265 feet in thickness.

The formations are essentially flat-lying; the formations strike N. 70° W. and dip 4° N.E. in the area proposed for exploration.

The Dakota sandstone over approximately the NE¼ of Section 24 outcrops as a flat-topped mesa. Along a line approximately parallel to the north boundary of the Garcia No. 1 claim (see fig. 1) the Dakota sandstone crops out as a south-facing escarpment; to the northwest of the Garcia No. 2 claim the escarpment trends northwest. The outcrop patterns of lower formations parallel this outline. The upper part of the Brushy Basin shale member, which is a greenish-gray bentonitic mudstone, crops

out as a slope at the base of this escarpment. The uranium occurs in the lower sandstone part of the Brushy Basin shale member (?) - perhaps this sandstone is the upper part of the Westwater Canyon sandstone. The sandstone portion of the Brushy Basin member and the part of the Westwater sandstone immediately above the Recapture shale member crop out as prominent ledges, which are in part obscured by debris from the upper part of the Brushy Basin member and the Dakota sandstone.

Uranium

Uranium ores have been mined on the Garcia No. 1 claim through a thickness of approximately 20 feet of the upper part of the sandstone of the lower member of the Brushy Basin shale member. Approximately 1000 feet of adits and drifts and adjacent small stopes (see fig. 1) expose the ore shoots on the Garcia No. 1 claim. T. W. Newell stated that wagon-drilling indicated uranium in minable quantities in the sandstones below the adit level; however, no data were kept as to location or depth of drill holes, thickness of uranium-bearing material, or uranium content of the wagon-drill cuttings.

The habit of uranium distribution in the Brushy Basin shale member is poorly understood. At present, it is assumed by the applicant that an east-west set of high-angle joints, which approximately parallels the outcrop, controlled the concentration of uranium minerals. A 20-30 foot wide uranium concentration at the original outcrop - now completely quarried away - is said by Mr. Newell to have followed such a joint set and the outlines of the present stope suggest an alignment of ore shoots along a joint set. However, the spatial relation of the known ore shoots to the jointing may be fortuitous. It is worth noting that joint patterns

have not been traced along the outcrop to determine whether or not like joints may project into the area proposed for exploration. A very detailed study would be necessary to determine the significance of the known joints, and if joints are significant, it would be difficult to distinguish parallel sets, in the incompletely exposed outcrop, that might project into the area to be explored.

The uranium-bearing sandstone unit is composed predominately of lenticular masses of cross-bedded sandstone. Bordering parts of these lenses or as adjacent small lenses or "pockets" are mudstones much like the bentonitic mudstones of the upper part of the Brushy Basin member. These mudstones comprise a relatively small amount of the sandstone unit. It may be significant that concentrations of uranium occur in the sandstone lenses at or near the boundary of the sandstone lenses and the intercalated mudstones. It is entirely possible that distribution of the uranium ore shoots is related to these variations in lithology rather than to joint sets.

No assay data are available on which to base appraisal of the Shattuck Dunn uranium deposit. However, the deposit can be judged from stope outlines and the past production record. No records have been kept of the production of the various stoped areas. Undoubtedly a large part of the ore was derived from the original outcrop which is now stripped away. The ore shoots, judging from stope outlines range from 2 to 11 feet in thickness, are 10 to 30 feet in width, and 30 to 100 feet in length. Between June, 1952 and February, 1953, the Shattuck Dunn Mining Corporation shipped 45 lots of ore totaling 4062.24 tons. These lots, which ranged from 23 to 170 tons in amount, contained .07 to 0.45 percent U_3O_8.

A weighted average of the 4062 tons produced by the applicant indicates an average content of 0.16+ percent U_3O_8. The ore mined in the past year has probably been downgraded because of dilution due to the applicant's attempt at large scale operation methods. Vanadium content is recorded for 31 lots of ore totaling 3066 tons. The average V_2O_5 content of this tonnage is 0.08+ percent. On the basis of past production the ore bodies sought by the proposed exploration might be expected to have an average content of 0.2 percent U_3O_8 and 0.08 percent V_2O_8.

Traverses with a geiger counter and a scintillation counter indicate that the stope outlines generalized on figure 1 outline the areas of significant radioactivity. Large portions of the adits shown without drifts on figure 1 show insignificant radioactivity. Radioactive outcrops were noted by the examiners along approximately 3000 feet of the exposed portion of the Brushy Basin member.

BASES FOR EXPLORATION IN THE AREA

The applicant hopes that the proposed exploration will result in the finding of ore or more zones of uranium-bearing sandstone 3 to 15 feet thick and of sufficient lateral extent to provide 200,000 to 250,000 tons of material with an average U_3O_8 content of 0.07 to 0.10 percent. This low-grade material would be available for mining, according to the applicant, because the Shattuck Denn Mining Corporation could then enter into a contract with the A.E.C. to build a plant to concentrate the ores to a grade of 0.25 percent. The applicant expects to be able by the use of Diesel equipment to use large scale, compared to the present scale, room and pillar methods of mining. An attempt by the applicant to do this scale of mining, since taking control of the property in April, 1952

has apparently resulted in considerable dilution of the available ore with the result that a few carload shipments have not been accepted by the A. E. C. In general the grade of the ore shipped has been lower than the average grade of ore shipped from the same property by the applicant's predecessor.

The writer is not favorably impressed by the applicant's expectations of one or more large low-grade ore-bodies, but believes that exploration should be directed toward the discovery of small ore-bodies of a few thousand tons each and of a grade on the order of, or possibly exceeding, 0.2 percent U_3O_8 comparable to those available in the past.

The Shattuck Dome uranium deposit is typical of the sandstone deposits of the Colorado Plateau. For this particular area geologic work has not been done on which to predicate sites for further exploration. However, in view of the past production of 5000 tons of material of approximately 0.2 percent U_3O_8 content, and of numerous occurrences in the surrounding area of minable uranium in adjacent formations, exploration of the area shown on figure 1 for extensions of the mineralized area appears warranted. Other minable occurrences in the Grants area are not known in the sandstone portion of the Brushy Basin member. However, significant occurrences of uranium are known in the Westwater Canyon member; Santa Fe's Poison Canyon deposit 1 1/2 miles to the southeast is a notable example. Therefore, as requested by the applicant, drilling to the top of the Recapture shale should be favorably considered. The fact that in the surrounding areas other significant deposits are not known in the Brushy Basin member should not be considered unfavorable. It is the writer's understanding that, during the short history of uranium

production in the Grants area, this portion of the stratigraphic column has not received as much attention of operators and prospectors as the lower stratigraphic units.

EXPLORATION PLAN

The original application requested financial aid for 5550 feet of adits and drifts. Such drifting into untested areas without knowledge of the position of targets is completely unwarranted. The applicant has now revised the exploration program so that a maximum of 12,190 feet of drilling will be completed or almost completed before a maximum of 3400 feet of drifting is contemplated. The applicant has complete confidence that drifting alone would be feasible exploration. From the available data this confidence is not warranted. A firm statement has been made by T. W. Newell to the effect that <u>if drifting is not included with drilling the Shattuck Denn Mining Corporation is not interested in a DMEA contract</u>. The Corporation is now in agreement that drifting should not be started until drilling indicates a target. Conceivably a sufficient target would be determined to start drifting prior to the end of the drilling program. More probably the possibilities for drifting will necessarily be evaluated at the end of the drilling program. The corporation wishes sufficient funds for a maximum of 3400 feet of drifting. Because of the habit of Colorado Plateau type uranium deposits, it seems unlikely that this amount of drifting will be required. However, a maximum of 3400 feet of drifting can be allowed under a DMEA contract with the understanding that drifting will not be done unless specific targets are indicated by Stage 1 drilling.

<u>Stage 1 - Drilling</u>

The revised exploration program contemplated drilling 36 holes on a 200-foot grid pattern north of the present mine workings. Promising

holes in this grid are to be bracketed by holes at intervals of 50 to 100 feet. Footage for 10 additional holes is allowed for offset holes. The drill hole layout as presented by the applicant included only 33 holes spaced at 275 feet intervals. Mr. Newell has indicated that this was an error, and figure 1 shows the intended pattern of the grid. The first drill holes are to be 200 feet north of the mine faces existing at the time the contract is started. The holes could just as well be drilled on an east-west grid to cover the southern parts of the Blue Peak Nos. 1 and 2 claims or northwest from the workings on a grid parallel to the cliff of Dakota sandstone. The grid pattern shown on figure 1 is only tentative.

The applicant estimated that the depth of the average hole would be 250 to 265 feet, therefore footage for the 46 holes is estimated on the basis of 265 feet per hole. On the basis of A.E.C. data a total of only 10,000 to 11,000 feet of drilling may be required to complete 46 holes.

At an early stage of the discussions the applicant submitted an estimate for diamond drilling in which the costs were excessive. Later a bid by the W. T. Myers Drilling Company for coring of the ore-bearing sandstone by rotary drill was considered by the applicant. Drilling by this method would allow completion of Stage 1 at a fraction of the cost of diamond drilling. However, because of unfamiliarity with the method, the applicant was reluctant to accept this method of drilling. More recent inquiry by the writer and other Tucson Geological Survey and Bureau of Mines personnel, in connection with other uranium applications, has indicated that rotary drilling is entirely feasible and that diamond drilling should no longer be considered. The writer doubts that the

sandstone of the Brushy Basin member is well enough cemented to allow good core recovery, especially through the minor mudstone lenses - where concentrations of uranium are likely to occur.

The applicant planned to core the uranium bearing sandstones, but made no provisions for assaying the cores. Our inquiry has determined that it is probably more feasible to sample cuttings rather than cores from the rotary drilling. If cores are not taken, an appreciable saving in drilling costs will be made. In conversation with T. W. Newell on June 4, 1953, it was decided that the most feasible method of the collecting of samples will be determined by trial. Therefore, maximum cost estimates are set up in the engineering report on the basis of possible core drilling. From the information available, samples of cuttings should be adequate for purposes of Stage 1.

Drifting

If Stage 1 drilling indicates areas of uranium mineralization in which uranium content and quantity should be substantiated by drifting, Stage 2 should be put in effect. The Shattuck Denn Mining Corporation would prefer to start drifting at the beginning of the drilling campaign. Because targets are not known, such drifting should not be allowed. After targets are established, continuation of present adits from one or more headings, new adits from one or more sites, or drifts or cross-cuts from one or more adits may be feasible. Some control should be exercised by the Government to insure that targets suggested by drilling are investigated via the shortest possible line of access. Otherwise the applicant may attempt to do development work using Government funds.

Sampling

Mr. Newell during early discussions wished to do no sampling, either of drill core or drift faces. Instead he proposed that cores and mine faces be checked only with a geiger counter and judged by the counter operator as to uranium content. No records would have been kept of geiger readings. This practice in the present mining operation has proven inadequate. The applicant has had several lots of ore rejected because of low uranium content and has paid royalties on material later shown not to be ore.

As finally agreed, the applicant will make core or cuttings from the stratigraphic units favorable to uranium investigation with a geiger counter, and samples that show significant radioactivity will be assayed. As the applicant is reluctant to do any assaying or recording, the contract should emphasize that adequate assay data be kept. It is reasonably expectable that the A.E.C. will log the drill holes for radioactivity; this information will aid in evaluation.

The applicant would make no definite statement concerning sampling and assaying from the drifts. Exposures sufficiently radioactive should be sampled at regular intervals, and the contract should so state. The strata above and below the drifts are to be tested by jackhammer holes or wagon drill; for this work adequate data should also be kept.

A part of the recording of data will be the compilation of maps. The applicant is also reluctant to do this, and the contract should specifically emphasize this some place other than in Article 5 of Form NF-200(A).

MISCELLANEOUS INFORMATION

The Bureau of Land Management has informed us that the N½, Section 24 is under oil and gas lease NM 09817, issued August 1, 1951, to T. O. Palmer. The effect of this lease on a possible contract is not understood by the writer. However, only a very small part of the exploration area is in the N½ of Section 24; therefore, it would not be essential to the exploration that any part of the N½ be subordinated.

It has not been possible to find out whether the Hyde claims (see figure 1), which are not controlled by the applicant, or the overlapping Blue Peak claims have priority. The applicant states that the Hyde claims have been allowed to lapse, but this has not been verified. Because a canyon makes drilling on most of the Hyde claims impractical for this exploration program, the writer would recommend that the area covered by the Hyde claims be omitted from the area for exploration.

CONCLUSIONS

Because of the several deposits of similar association in the vicinity of the area proposed for exploration and because of the uranium production record from the Garcia claims, it is believed that exploration is warranted. The applicant's original exploration proposal is not warranted, but the revised program can be accepted. Particular emphasis should be placed on preservation of the data available from the exploration work.

DMMA-2765, SHATTUCK-DENN MINING CORPORATION'S URANIUM CLAIMS
McKINLEY COUNTY, NEW MEXICO

Engineering Report

By L. L. Farnham
Mining Engineer
U. S. Bureau of Mines

June 1951

DMEA-2765, SHATTUCK-DEAN MINING CORPORATION'S URANIUM CLAIMS

McKINLEY COUNTY, NEW MEXICO

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ILLUSTRATIONS

(Included in geologic report.)

INTRODUCTION

In November 1952, the Shattuck Denn Mining Corp. applied to the Defense Minerals Exploration Administration under the Defense Production Act of 1950, as amended, for an exploration loan amounting to $197,851.43. The application was docketed as DMEA-2765. The funds requested were for the purpose of exploring a uranium deposit by means of 5,500 feet of drifting and crosscutting. The property was visited by examiners of the Geological Survey late in January 1953. At that time it was suggested to the applicant that the original application should be amended whereby some preliminary core drilling should precede the underground work. Consequently a revised application was submitted to the Tucson office on April 3, 1953. This new proposal, involving 9,470 feet of core drilling and 3,400 feet of drifting and crosscutting, was estimated by the applicant to cost a total of $220,870.

The Bureau of Mines examiner visited this property on June 16, 1953.

LOCATION AND ACCESSIBILITY

The property is situated northwest of the town of Grants and covers a large portion of sec. 24, T. 13 N., R. 10 W., McKinley County, N. Mex. It is accessible from Grants over 16 miles of road, the most of which is unimproved.

HISTORY AND PRODUCTION

The claims were probably located at some time subsequent to 1950 when the presence of uranium was first detected in the Grants area. The original operators, known as the Blue Peak Mining Co., exploited the outcrop of the deposit, and are reported to have produced about 3,000 tons of ore containing some 0.2 percent U_3O_8. The applicant corporation acquired the property in April 1952 and between that time and March 1, 1953, has produced 4,062 tons averaging about 0.16 percent U_3O_8. Thus the total production of the deposit, including the first 2 months of 1953, has amounted to approximately 7,000tons containing about 0.18 percent U_3O_8 and 0.09 percent V_2O_5. The ore was sold to The Anaconda Copper Mining Co.'s receiving station at Bluewater, N. Mex.

The property was not active when visited in June 1953.

OWNERSHIP AND EXTENT

The Shattuck Denn Mining Corp. has a lease and options on 4 contiguous groups containing a total of 27 unpatented lode claims. The life and terms of the different options are not known as this office does not have copies of the lease agreements.

The Bureau of Land Management at Santa Fe, N. Mex. reports that the SW¼ of sec. 24, T. 13 N., R. 10 W. is covered by an oil and gas lease (NM 05217) issued August 1, 1951 to T. O. Palmer. This oil and gas lease covers a portion of the applicant's claims. However, it is not known whether or not the mining claim locations have priority over the oil and gas lease.

DESCRIPTION OF THE DEPOSIT

The uranium mineralization on the Shattuck Denn property occurs in a sandstone member of the upper Morrison formation. The mineralized bed ranges from 20 to 30 feet thick and lies almost horizontal. The ore bodies, containing from a few tons to several hundred tons, are lenticular pods distributed sporadically within the sandstone bed. Carnotite is present as well as other unidentified uranium minerals.

ORE RESERVES

At the time the property was visited there were no substantial reserves in evidence within the developed portions of the deposit.

The applicant is of the opinion that given the funds necessary to further explore the mineralized horizon over an area 3,500 by 1,000 feet, about 500,000 tons of 0.10 plus U_3O_8 ore could be made available. Whether or not this estimate is based on the ratio of ore formerly found within a definite area is not known. At any rate the estimates infer a repetition of those unknown factors within the bed that control the uranium deposition.

PRESENT STATUS

The productive area has been explored by 8 sub-parallel adits from which interconnecting crosscuts, stopes, and short raises have been driven (figure 1). This work was confined to a length of about 750 feet along the outcrop and penetrated the bed for distances ranging from 30 to as much as 200 feet. Those portions of the bed lying both above and below the openings were prospected by drilling, using a wagon drill for the down holes and a stoper for the holes in the back.

PROPOSED EXPLORATION

Core Drilling

In the revised proposal submitted in writing, the applicant contemplated 9,470 feet of core drilling. During the recent conference with T. W. Newell, an assistant vice-president of the applicant corporation, the proposal was changed as follows: 12,190 feet of core drilling, consisting of 36 holes drilled from the surface on a 200-foot staggered grid pattern to an average depth of 265 feet, and 10 contingent holes to be drilled at closer intervals in the more favorable areas that might be indicated by the original holes.

Estimated Cost of Drilling

The applicant submitted bids from 2 independent core drilling contractors. The bid of R. S. McClintock, a reliable diamond drilling contractor, was $6.85 a foot for BX holes to depths of 265 feet. This price included an estimated additional allowance of 10 cents a foot for contingencies such as cementing and reaming. Under the

circumstances and in view of prevailing comparable drilling costs this bid appears excessive. The Myers Drilling Co. who submitted the other bid, employs rotary core drilling using carbide alloy cutters in place of diamonds, and drills a 4-inch hole cutting a 2-inch core. The method is a recent innovation in the Grants area and for that reason the applicant expressed some doubt as to the advisability of using that type of drilling. However, it is reported that Myers has successfully completed holes in the vicinity of the applicant's property with a much greater drilling speed than is possible in diamond drilling.

The total costs of the core drilling proposals are estimated as follows:

McClintock bid. Estimated time 6 months

Depth, feet	Price per foot	Total
0 - 20	$7.20	$144.00
20 - 145	6.70	837.50
145 - 200	6.50	357.50
200 - 265	6.90	448.50
265		$1,787.50

Average per foot $6.75
Contingencies 0.10
Total per foot $6.85

Independent contract - 12,190 feet @ $6.85	$83,501.50
Supervision - $600 a month	3,600.00
Sampler - 156 shifts at $15.00	2,340.00
Drill site preparation	840.00
Assaying, 6 samples per hole @ $3.50	966.00
Core boxes and incidentals	250.00
Total	$91,497.50

Average overall cost of diamond drilling - $7.50 a foot.

Myers' Bid

The following is a copy of the bid submitted by the W. T.

Myers Drilling Company:

April 1, 1983

"Shattuck-Denn Mining Corporation
Grants, New Mexico

"Gentlemen:

"We appreciate the opportunity to bid on the drilling program you have in mind for the Dakota and the Morrison sandstone formations in the general area of your Blue Peak mining operation out of Grants, New Mexico. It is our understanding that there is approximately 9,000 feet of hole to be drilled; and that the average depths of the holes will be about 200 feet, and will not exceed 300 feet in depth. Our quotation is as follows.

Class 1 drilling: Plain hole, no casing

1st 100 feet or any part thereof	$.50	per feet
2nd " " " " " "	1.00	" "
3rd " " " " " "	1.50	" "
4th " " " " " "	2.00	" "
5th " " " " " "	2.50	" "

Class 2 drilling: Hole as above but blown clean of cuttings every two feet.

1st 100 feet or any part thereof	1.00	per feet
2nd 100 " " " " "	1.50	" "
3rd " " " " " "	2.00	" "
4th " " " " " "	2.50	" "
5th " " " " " "	3.00	" "

Class 3 drilling: Coring in formations amenable to coring.

1st 100 feet or any part thereof	3.00	per feet
2nd " " " " " "	3.50	" "
3rd " " " " " "	4.00	" "
4th " " " " " "	4.50	" "
5th " " " " " "	5.00	" "

Cementing holes in fractures and cavities and drilling cement plug. $3.00 per foot in any zone. Reaming and casing holes in fractures and cavities where necessary. $4.00 per foot in any zone. Standby time $9.00 per hour for delays at your request and account.

Drilling locations are to be staked in advance. Drilling locations are to be cleared and accessible for our equipment.

"All three classes of drilling may be combined in any hole in any proportion at the above rates. We also want to call to your attention that a 300 foot hole (plain) will average only $1.50 per foot top to bottom. Shorter holes will average proportionately lower.

The above prices cover all costs of equipment, labor, tools, supplies, materials, payroll taxes and insurances.

We are in position to move in on your work on short notice.

Very truly yours,

/s/ W. T. Myers
W. T. Myers"

Estimated Cost of Myers' Bid

Class 1 drilling

0 - 100	feet	@ $0.50 -	$50.00
100 - 145	"	@ 1.00 -	45.00

Class 3 - coring

145 - 200	feet	@ $3.50 -	$192.50
200 - 265	feet	@ 4.00 -	260.00
265	feet, costs		$547.50 or $2.07 a foot

If instead of coring, the cuttings are used as a sample, the costs would be as follows:

Class 1, drilling

0 - 100	feet	@ $0.50 -	$ 50.00
100 - 145	"	@ 1.00 -	45.00

Class 2, drilling (no coring - cuttings collected)

145 - 200	feet	@ $1.50 -	82.50
200 - 265	"	@ 2.00 -	130.00
265	feet, costs		$307.50 or $1.16 a foot.

Allowing an additional 10 percent for possible cementing, reaming, etc., the cost of drilling under the Myers bid would range from $2.28 a foot, if coring was used, to $1.28 if the cuttings would serve as a satisfactory sample. It is the opinion of the local geologists

of the Atomic Energy Commission that the drill cuttings, if properly taken, would constitute a reliable sample.

Other Costs of Ayers' Bid. Estimated time - 3 months.

Supervision - 3 months @ $600	$1,800.00
Drill site preparation	850.00
Sampling and assaying	1,000.00
Miscellaneous expense	250.00
Total additional cost	$3,900.00
Average per foot of 12,190 feet of drilling	$0.32

The duties of the supervisor will consist of locating the drill sites, collection and preparation of the samples, and the recording of all pertinent data. In the productive bed a sample should be collected representing at least each 5 feet of all the drill holes. Each hole soon after completion will be logged radio-metrically by the Atomic Energy Commission at no expense to the operator. The samples previously collected that represent the horizons shown to be sufficiently radio-active by this logging should then have their U_3O_8 content determined chemically.

Summary of drilling costs (Ayers' bid)	Coring @ $2.28/ft.	Cuttings only @ $1.28/ft.
Independent contract - 12,190 feet	$27,793	15,603
Other costs - 12,190 feet @ 32¢	3,900	3,900
Totals	$31,693	$19,503

Estimated Cost of Drifting and Crosscutting

The applicant proposed driving large underground openings with a rock section of about 9 by 10 feet. This has been its former practice and in so doing it used a Caterpillar Diesel D-4 tractor with a 1.5-yard loader attachment which served for both the loading and the haulage of the broken material from the face to the surface. As the face of the drifts are advanced to increasingly greater distances from the surface, this method of transporting the broken material becomes progressively slower so eventually other and faster haulage equipment would be necessary. This is the reason for the large sum($26,332) requested in the application for additional equipment.

The applicant's estimate of the cost of driving the proposed 3,400 feet of large underground openings, based on a time of 9 months, is as follows:

	Total	Per foot
Labor and supervsion	$51,544	15.16
Workman's Compensation	4,639.03	1.36
Unemployment insurance	1,546.34	0.46
Annuity tax	773.17	0.23
Liability insurance	110.00	0.03
Operating material and supplies	45,185.16	13.29
Operating equipment (New and rented)	26,362.00	7.77
Office equipment	2,500.00	0.73
New buildings	2,500.00	0.73
Assaying	5,000.00	1.47
Applicant's total estimate	$140,159.72	$41.22

The writer's estimate, given below, is based on a 5 by 7-feet opening, driven in the conventional manner, working 2 shifts daily for 6 days a week, with an average advance of 8 feet per day.

Equipment necessary 1/	Value	Monthly Depreciation
3 Rock drills	$1,800	$30.00
1 365-cfm compressor	8,000	133.00
1 Bit grinder	187	3.00
1 Geiger counter	240	4.00
1 Water tank	400	6.00
1 Ford truck	1,200	20.00
1 Ventilation blower	720	12.00
Total	$12,547	208.00

Labor	Per day	Per foot
2 Miners @ $15.00	$30.00	
4 Muckers @ $12.00	48.00	
1 Superviser @ $600	23.00	
Overtime - 48 hr. week	6.50	
Compensation Insurance(9%)	9.68	
Unemployment Insurance(3%)	3.23	
F.I.C.A. (1.5%)	1.61	
Total labor	$122.02	$15.25

1/ To be furnished by applicant.

	Per Foot
Power	$1.75
Explosives	2.50
Bits and steel	1.50
Timber[2]	1.50
Pipe	0.60
Ventilation tubing	0.90
Track	1.20
Repair parts	0.75
Test holes[3] (2 10-foot holes every 10 feet @ $1.00 ft.)	2.00
Assaying (sample each 4 feet @ $3.50)	0.90
Depreciation (Equipment valued at $12,500)	1.00
Total per foot	$29.85

When consideration is given to incidental expenses, an estimate of $30 a foot for the underground work appears reasonable and some such amount would probably be close to the actual cost of driving a 5 by 7-foot exploratory opening by ordinary conventional methods.

SUMMARY OF TOTAL ESTIMATED COST OF PROJECT

12,190 feet of diamond drilling under the McClintock bid would cost $91,425. The same amount of drilling under the Myers bid would cost $31,693 if core was taken in the productive horizon and $19,503 if the cuttings from that horizon would serve as a satisfactory sample. The cost of 3,400 feet of drifting and cross-cutting at $30 a foot, as estimated by the writer, would amount to $102,000. Thus the total cost of the proposed project would be $193,425 in case the bid of McClintock was accepted. If Myers was awarded the drilling contract the total cost would amount to $133,693 if coring was necessary and $121,503 if the collection of the drill cuttings would serve as a sample.

2/ Occasional sets where back is fractured.
3/ To explore the full thickness of the sandstone bed.

Paul E. Melanson, who is in charge at Grants for the Atomic Energy Commission office, recently informed the examiners that the work of the Myers Drilling Co. had been found satisfactory and that He knew of no reason why it would not be suitable for the proposed drilling on the subject property. He said also that holes drilled to an average depth of 265 feet on the Shattuck-Denn property might be somewhat deeper than necessary.

CONCLUSIONS AND RECOMMENDATIONS

The RMMA examiners have concluded that the deposit is worthy of further exploration but not in the manner originally proposed by the applicant. In order to save time the applicant desired to perform the underground work concurrently with the drilling. In case of such a procedure it appears that the underground work would be largely "blind" if it were not preceded by drilling. For that reason it was not considered feasible to start the drifting until the presence of a suitable ore body had been indicated by the preliminary drilling.

Consequently it is recommended that the project be set up in 2 stages, stage 1 to consist of the proposed drilling, and the underground work constituting stage 2. The second stage, although contingent upon the results of stage 1, need not necessarily await the completion of all the drilling but could be started as soon as a suitable discovery was indicated by any of the drilling.

In view of the recommendation by the Atomic Energy Commission and the saving in cost, it appears that the bid of Myers Drilling Co. should be accepted.

It is suggested that the project be set up, if possible, as a short form contract along the following lines:

Stage 1. An allowable maximum of 12,190 feet of drilling at a cost not to exceed $31,693. The price paid per foot to be based on the actual footage of each class of drilling performed at the rates specified in the Myers' bid. In other words, the Government would pay 90 percent of the monthly invoice submitted by the contractor. In addition the operator would be paid 29 cents (90% of 32 cents) per foot drilled to cover his share of the other costs, such as supervision, sampling, etc. $2.60/ft.

Stage 2. The 3,400 feet of drifting and crosscutting to be paid for at the rate of $27 a foot (90 percent of $30). It appears that the applicant will probably employ his present equipment and continue driving the large exploratory openings. There is no apparent objection to this procedure so long as any additional costs incurred in driving larger than standard size openings are borne by the applicant.

6/4/53 - db.

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

May 29, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUN 2 1953

Mr. Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMEA-2765 (Uranium)
McKinley County, New Mexico

Dear Mr. Ellis:

Following our telephone conversation today I have communicated with Mr. A. S. Shride of the Bureau of Mines at Tuscon. He informed me that his office was finishing its part of their work on the application and forwarding it to Washington within a few days. He also said that any further communications about the application would be sent directly by you to me at this office and I would appreciate your doing so.

Note

Thanking you for the information you gave me over the telephone today, I am,

Yours very truly,

Thomas Bardon
President

TB:twp

February 26, 1953

Docket No. DMEA-2765
Shattuck Denn Mining Corporation

Transferred to Region IV on Nov. 24, 1953
for field examination

Excerpt from Region IV January 30, 1953
status report:

USGS examined property January 27 and 28.
Applicant proposes to complete revision of
his application and confer with the Tucson
office.

Mrs. Ault

700

FILE COPY
SURNAME:

Schmidt
Ellis
Matthews

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

DEC 19 1952

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

Re: Docket No. DMEA-2765 (Uranium)
McKinley County, New Mexico

Dear Mr. Bardon:

In accordance with your letter of December 15, 1952, directed to Mr. F. Sommer Schmidt, we are enclosing eight copies of Form MF-803, Owner's Consent to Lien. Should it become necessary for you to submit an Owner's Consent to Lien in connection with your above-docketed application, seven signed copies should be forwarded for our purposes and one copy retained by you.

Sincerely yours,

SIGNED

Ernest Am. Ellis, Chief
Rare and Misc. Metals Division

P.H.
12-19-52

Enclosures

FSSchmidt/gla 12-18-52
cc to: Adm. Reading File
Docket
Mr. Ellis
Mr. Schmidt
DMEA Field Team, Region IV (2)

5/29/53 Mr. Bardon phoned Mr. Ellis & among other things, he stated the Owner's Consent to Lien forms were sent to Tucson office (K.M.G.)

12/18/52 gla

SHATTUCK DENN MINING CORPORATION

120 BROADWAY

NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

December 15, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 16 1952

Mr. F. Sommer Schmidt
Defense Minerals Exploration Administration
Department of Interior
Washington 25, D.C.

Re: DMEA-2765

Dear Mr. Schmidt:

You will perhaps remember that when I saw you in your office in Washington a few weeks ago and discussed the above-mentioned uranium exploration loan, you mentioned a form which is necessary in the case of an exploration loan being conducted upon leased ground. I think the term you used was lienor's consent and you offered to give me some of the forms but I left without taking them with me.

If possible, I hope you will have several of these forms mailed to us at the above address. I realize they will not be necessary until DMEA has proceeded further with our application but we would like to have the forms in order that we may ascertain what is necessary in this connection and perhaps take the subject up with the property owners.

Any assistance you can give us in this matter will be very much appreciated.

Yours very truly,

Thomas Bardon
President

TB:twp

FILE COPY
SURNAME:

Schmidt
Ellis
Kubiel
Hedges
Johnson

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

NOV 24 1952

Mr. Thomas Hardon, President
Hatchuck Penn Mining Corporation
[illegible] Broadway
New York 5, New York

Re: Docket [illegible]-2765 (Uranium)
McKinley County, New Mexico

Dear Mr. Hardon:

The application for assistance in exploring your property in McKinley County, New Mexico, under the above captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration. Your application has been referred for a field examination to the Executive Officer of Region IV at the following address:

Mr. [illegible] Fine
Executive Officer, Region IV
[illegible] Field Team
[illegible] New Customhouse Building
Denver 2, Colorado

The regional office will contact you at the earliest opportunity in regard to your project.

Sincerely yours,

Signed J.H. 11-24-52

Administrator

FSSchmidt/jem
11/20/52
cc to: Adm. Reading File
Docket
Messrs. Ellis
Schmidt
Field Team, Reg. IV (2)

FILE COPY
SURNAME:
700

Schmidt
Ellis
Attention

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

NOV 24 1952

Mr. [illegible]
Executive Officer, Region IV
Y/ Field Team
224 New Customhouse Building
Denver 2, Colorado

Re: Docket [illegible]-2755 (Uranium)
Chattuck Term Mining Corporation
McKinley County, New Mexico

Dear Mr. [illegible]:

The subject application is referred to you for a field team examination. The property has produced [illegible] tons of [illegible].2% and 4,000 tons of [illegible].1% [illegible]3 U. It is currently producing 20 tons per day of [illegible].1% [illegible]3 U.

The property is located [illegible] New Mexico, [illegible] Commission, and [illegible] Mr. Robert Gordon [illegible], Colorado, and the geological staff of the Commission [illegible], New Mexico.

[illegible] applicant [illegible] results [illegible] core or [illegible] will be [illegible] the exploration of [illegible].

It is recommended that the applicant, Chattuck Term Mining Corporation be [illegible] successful mining company with years experience in this kind of work. It does seem however that this application [illegible] the line between exploration and development [illegible] sufficiently well drawn.

Part of the property is leased, and part [illegible]. Since this office is [illegible] with the New York [illegible] of the Chattuck Term Corporation all work concerned with getting owner's consent to [illegible] will be done from this office.

Sincerely yours,

(Signed) FRANK E. JOHNSON
(FEJ)
Chairman, Operating Committee
FE:Schmidt/mej 11/20/52
cc to: Adm. Reading File Docket
Messrs. HDKeiser-Rm.1347
APButler-Rm.3206 GSA
Ellis Schmidt
Opr. Committee Field Team, Reg. IV

P.H. 11-24-52

P.S. Memorandum from Bureau of Mines and Geological Survey are attached.

Concur:
J. H. Hedges (JHH)
Member, Bureau of Mines

A. R. Kinkel, Jr. (ARK)
Member, Geological Survey

ST[illegible]RD FORM NO. 64

11/19/52 gla

Office Memorandum • UNITED STATES GOVERNMENT

TO : E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

DATE: Nov. 12, 1952

FROM : Arthur P. Butler, Jr., USGS Member, Uranium Commodity Committee

SUBJECT: Application-DMEA Docket 2765 (Uranium), Shattuck Denn Mining Corp., Applicant: Garcia and Blue Peak Claim Groups, Sec. 24, T. 13 N., R. 10 W., McKinley Co., N. M.

DEPT. OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 18 1952

Comment

The application identified above and available information in the Geological Survey files pertinent thereto have been reviewed. The applicant and the preceding operator have mined 7,000 tons of ore containing about 0.18 percent uranium from this property. The deposit is, therefore, a large one according to the general range in size of deposits in the Colorado Plateau region. Further exploration is clearly warranted.

The applicant proposes to explore by driving two 1000 ft. and two 750 ft. adit drifts in a general northerly direction across the estimated trend of the sedimentary structures and related features with which the longer direction of mineral rich lenses are believed to coincide and to drive 1000 additional feet of connecting crosscuts. Although such adits would satisfactorily explore the ground traversed by them, it is questionable whether the expense of drifting into completely untested ground would be warranted without some knowledge as to the position of targets that would furnish an effective guide to the location of entryways.

Because of the spotty and erratic distribution of ore-bodies of the type here considered in this general region, the customary practice is first to drill to find, and at least partly to delimit ore, before driving underground openings. In this way the most effective location and approximate extent of underground openings can be guided and determined by positive information. The applicant does not furnish data to justify the specific extent of drifting proposed and available information is inadequate for judging this. Moreover, the geologists of the Atomic Energy Commission have recommended that the ground with which the present application is concerned be explored initially by 6,000 feet of drilling. The applicant states that drilling would not be a suitable means of exploring for ore, though he does not support his contention by showing that the ground differs materially from ground elsewhere containing similar ore bodies that have been satisfactorily explored by drilling. The type and number of openings proposed by the applicant are comparable to those that would be driven for the development and mining of ore found by drilling. In the absence of compelling evidence against the suitability of exploration by drilling, I believe much, if not all, of the proposed work is more nearly akin to development rather than exploration. Certainly no evidence is presented to justify as extensive and

elaborate drifting as is proposed. Probably about 6,000 feet of drilling on a grid pattern plus a suitable over-run for offset holes around primary holes that intersected mineralized rock would test the ground adequately. Such exploration would cost only a fraction of the plan proposed by the applicant.

Recommendations

The record of this property and its evaluation by geologists of the Atomic Energy Commission are such asto warrant further exploration of it. I recommend that the application be referred to the Field Team for review and determination of the kind and amount of exploration that might be authorized. Members of the Field Team should consult with members of the staff of the Grants Sub-Office, Grand Junction Exploration Branch, AEC, Grants, N. M., to obtain the benefit of the information and recommendations of that staff. It is possible that the AEC may have necessary maps and information that would eliminate the need for actual examination of the property.

Arthur P. Butler, Jr.

Arthur P. Butler, Jr.

Copy to: E. Wm. Ellis

11/14/52 gla

3205

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

November 13, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 14 1952

Memorandum

To: Ernest William Ellis, DMEA Member,
Uranium Commodity Committee, Room 4640

From: H. D. Keiser, Bureau of Mines Member,
Uranium Commodity Committee

Subject: DMEA Docket No. 2765, Shattuck Denn Mining Corporation, 120 Broadway, New York 5, N. Y.

I have reviewed the application in the subject docket and discussed it with Mr. Arthur P. Butler, Geological Survey Member, and Mr. Joseph O. Hosted, representative of the U. S. Atomic Energy Commission.

Available information indicates that the Atomic Energy Commission is familiar with the geological features of, and exploration methods employed in, the area involved under the application, and that the Commission maintains a geological staff at its office in Grants, New Mexico, where pertinent data relative to the area is on file.

The proposal contained in the application would seem to comprise a development program rather than an exploration program. Moreover, it is understood that drilling is commonly employed in the area for exploration purposes; the applicant's statement that "due to the peculiarity of the deposition of the uranium, dependable results cannot be obtained by either coring or wagon drilling" is therefore questioned.

It is recommended that the application be referred to the field team for investigation and report, and that the field team be requested to consult with Mr. Ernest Gordon, Atomic Energy Commission, Grand Junction, Colorado, and with the geological staff of the Commission at Grants, New Mexico, relative to the application.

H. D. Keiser

H. D. Keiser

Attachment

November 4, 1952

Mr. Thomas Bardon, President
Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

DMEA-2765
Subject: Exploration Assistance
Re: Shattuck Denn Mng. Corp.
Uranium Branch

Dear Mr. Bardon:

The receipt of your application dated October 31, 1952, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-2765 and referred to the Rare and Miscellaneous Metals Division.

Kindly refer to DMEA-2765 in any future correspondence relating to your application.

Sincerely yours,

R. E. ADAMS
Robert E. Adams
Chief, Operation Control
and Statistics Division

25451

Dmea 2765

SHATTUCK DENN MINING CORPORATION

120 BROADWAY

NEW YORK 5, N. Y.

THOMAS BARDON
PRESIDENT

October 31, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 3 1952

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

Dear Sirs:

Enclosed herewith is an application for aid in an exploration project, prepared on your form MF-103, which we are making in connection with proposed work at a uranium property near Grants, New Mexico. Form MF-103 and all accompanying papers are submitted in quadruplicate except that there is only one copy of our lease on the land. We understand that only one such copy is required but if you need additional copies, we will at your request forward them to you.

Kindly acknowledge receipt and advise us of the name of the official in your Washington office who will handle this application.

Yours very truly,

SHATTUCK DENN MINING CORPORATION

By Thomas Bardon
President

TB:twp
Enc.

SHATTUCK DENN MINING CORPORATION

CONSOLIDATED BALANCE SHEET — DECEMBER 31, 1951

ASSETS

CURRENT ASSETS:			
Cash		$1,133,144.45	
U. S. Government securities, at par value (at market quotations $1,005,099.06)		1,000,000.00	
Accounts receivable		486,352.44	
Ores and fluorspar, at lower of cost or market		55,814.91	
Supplies, at cost		235,621.54	
Prepaid expenses		18,938.18	$2,929,871.52
INVESTMENTS:			
Vulcan Silver-Lead Corporation stock, at cost (at market quotations $200,821.38)		$ 95,563.28	
Other, at cost		58,501.00	154,064.28
PROPERTY, PLANT AND EQUIPMENT (see note A):			
Mines, mining claims and leaseholds	$ 960,144.84		
Less accumulated depletion	424,766.95	$ 535,377.89	
Buildings, machinery and equipment	$1,252,043.76		
Less accumulated depreciation	750,010.73	502,033.03	1,037,410.92
DEFERRED CHARGES:			
Exploration and development			168,107.65
			$4,289,454.37

LIABILITIES AND CAPITAL

CURRENT LIABILITIES:		
Accounts payable and miscellaneous accrued expenses	$ 115,650.44	
Wages accrued	58,451.84	
Federal and State income taxes accrued	583,327.68	
Other taxes accrued	40,143.02	$ 797,572.98
CAPITAL:		
Capital stock:		
Authorized—1,000,000 shares of $5.00 par value each Issued and outstanding—799,416 shares	$3,997,080.00	
Deficit (see note B)—per Statement of Consolidated Deficit	505,198.61	3,491,881.39
		$4,289,454.37

The Notes to Financial Statements on page 7 are an integral part of above statement.

SHATTUCK DENN MINING CORPORATION

STATEMENT OF CONSOLIDATED INCOME

YEAR ENDED DECEMBER 31, 1951

Income:		
Sales value of metals in concentrates and sales of fluorspar		$5,994,184.73
Less charges for smelting, refining and freight		1,692,508.07
Sales of concentrates and fluorspar		$4,301,676.66
Interest earned and dividends received		15,078.58
Miscellaneous earnings		13,286.26
		$4,330,041.50
Costs and expenses:		
Operating expenses, development, maintenance, repairs, general and administrative expenses, and taxes other than income taxes	$2,803,247.08	
Deduction for depreciation	112,497.46	
Exploration and examination of mines	66,497.45	
Deduction for depletion	10,035.36	2,992,277.35
		$1,337,764.15
Federal and State income taxes—estimated (no excess profits tax indicated)		493,000.00
CONSOLIDATED NET INCOME of the year 1951		$ 844,764.15

STATEMENT OF CONSOLIDATED DEFICIT

YEAR ENDED DECEMBER 31, 1951

Consolidated Deficit December 31, 1950		$ 750,400.76
Reduction of consolidated deficit:		
Consolidated Net Income of the year 1951	$ 844,764.15	
Less distributions to stockholders in the year 1951 ($.75 per share)	599,562.00	245,202.15
CONSOLIDATED DEFICIT December 31, 1951 (see note B), per Consolidated Balance Sheet		$ 505,198.61

The Notes to Financial Statements on page 7 are an integral part of above statements.

From studies made by the Company's engineers and by independent engineers, it has become apparent that a new shaft will be necessary for the mining of the ore on the deeper levels of the Iron King mine. When the present main shaft, known as No. 6 Shaft, was planned the size and depth of the ore body was not known, and this shaft will become inadequate within the next few years if the current rate of production is to be maintained or increased. Accordingly, preparations are now being made to sink a new shaft, to be known as No. 7 Shaft, at a location approximately 420 feet northerly of No. 6 Shaft. The new shaft is planned to reach an initial depth of 1,867 feet but it will be designed and equipped to serve the mine at much greater depths. It will be connected on several levels with No. 6 Shaft and as mining may be carried on at greater depths both shafts can be further deepened and connected.

The output of the Company's fluorspar subsidiary, Zuni Milling Company, with mine and mill located in New Mexico, showed a substantial increase over 1950. The main product of this operation is acid grade fluorspar which is used in the aluminum and chemical industries. The expansion of these industries has increased the demand and price of this grade of fluorspar, a condition which is likely to continue as long as the Government's defense program is maintained at its current level. In addition to treating the ore obtained from Zuni's own mines, the mill treats substantial quantities of ore purchased from other mines in New Mexico, Arizona and Mexico.

As was stated in last year's report the concentrating mill which the Company owns at Bisbee, Arizona, remains idle. Efforts have been made to develop sources of raw material for that mill but to date such efforts have been unsuccessful. During 1951 the Company's office building and manager's residence were sold. Miscellaneous equipment and supplies remaining in Bisbee were either sold or charged off.

Exploration work at the Kay mine, situated in Arizona, was begun late in 1950 and continued through February 1952. In the latter part of 1951 The New Jersey Zinc Exploration Company, a subsidiary of The New Jersey Zinc Company, joined us in said work. The work was recently terminated because it failed to disclose sufficient ore of commercial quality.

Our 1950 report mentioned arrangements which we had made with the organizers of a Mexican corporation with holdings in the southern part of Baja California, Mexico. During 1951 exploratory work was done there in the vicinity of La Paz, but the results were unfavorable and the work was discontinued. The cost thereof, amounting to $59,814.94, has been charged off but we still retain an investment of $50,000 in the securities of the Mexican corporation which is attempting to develop some of the other resources of that area.

The Company has retained and now holds 55,399 shares of the Vulcan Silver-Lead Corporation, which it received from the 79 Lead-Copper Company when that Company sold virtually all of its assets to Callahan Zinc-Lead Company. The Vulcan mine is now being developed in accordance with the terms of an agreement between Vulcan Silver-Lead Company and American Smelting and Refining Company. On December 31, 1951 the market value of this Vulcan stock owned by Shattuck Denn Mining Corporation was approximately $200,821.38 compared with the $147,346.56 which it had invested in the 79 Lead-Copper Company. In 1951 Shattuck Denn Mining Corporation sold 37,500 shares of the stock of 79 Lead-Copper Company for $500 but still retains 17,899 shares or approximately 19% of the presently issued and outstanding stock of 79 Lead-Copper Company. All of the Shattuck Denn representatives serving as officers and directors of the 79 Company have resigned and the new 79 management intends, we are informed, to continue the corporate existence as an investment company. At the time of the resignation of the Shattuck Denn representatives, the value of the 79 Company's assets had been reduced to approximately $2700.

Early in 1951, the Abril mine, in Arizona, was leased and has since been operated by the lessee. A small sum has been received as royalties from the lessee who has, we are informed, obtained a Government exploration loan, the proceeds of which will be used to explore the mine.

The Scales mine near Strawberry Valley, California, a gold property, was also leased in 1951 and the lessees are now engaged in a development program.

Your Company is actively continuing its efforts to obtain new mining properties and during the past year it has investigated a number of such possibilities. Options have been secured on several locations which will be further studied and perhaps tested by diamond drilling or by other methods. Other properties are under negotiation. Experimental work, looking toward improved metallurgical processes and increased recoveries of metals from ore, is also being conducted and encouraging progress is being made in that direction.

For the Board of Directors,

THOMAS BARDON,
President.

SHATTUCK DENN MINING CORPORATION

120 BROADWAY
NEW YORK 5, N. Y.

To the Stockholders:

Net income of the Company and its wholly-owned subsidiaries in 1951 was $844,764.15 after all charges including depletion and estimated Income taxes, compared with $627,658.30 in 1950.

Two distributions totalling $599,562.00 were paid to stockholders during 1951, as follows:

June 15, 1951 — 30¢ per share
December 15, 1951 — 45¢ per share

Distributions to stockholders in 1950 were at the rate of 50¢ per share.

The Company's financial statements certified by Messrs. Pogson, Peloubet & Co., independent Certified Public Accountants, are submitted herewith. To supplement such statements we wish to present the following figures:

INCOME from —	
Lead, zinc, copper, gold, silver and fluorspar	$5,994,184.73
Rents, royalties and fees	9,428.77
Dividends and interest	15,078.58
Miscellaneous	21,879.47
	$6,040,571.55
COSTS of —	
Smelting, refining and transportation of ores and concentrates	$1,775,966.03
Purchased ores	275,188.82
Supplies	661,893.53
Power, water, etc.	145,770.92
Wages	1,253,160.62
Salaries—staff and clerical	35,329.57
Salaries—President, Vice President and Secretary-Treasurer	35,075.00
Miscellaneous taxes and insurance	191,761.91
Exploration and examination of mines	66,497.45
Legal and auditing	15,065.63
Rents and royalties	84,268.60
Miscellaneous	65,986.42
	$4,605,964.50
Less increase in inventories of ores and concentrates	25,689.92
	$4,580,274.58
Federal and State income taxes—estimated	493,000.00
	$5,073,274.58
Net Income for year, before depletion and depreciation	$ 967,296.97

The foregoing tabulation does not include 1951 expenditures for construction and equipment, amounting to $155,722.22; acquisition and development of new mining properties $133,497.26, and $200,000.00 for the purchase of additional United States Government securities. At the end of the year such Government securities had a par value of $1,000,000, their market value was $1,005,099.06 and all of them mature within one year.

In 1951 there were 242,775 tons of ore treated in the Company's plants from ores produced at its mines, purchased for processing and processed for others. Production of metals and minerals was 5,929,653 pounds of lead, 15,725,624 pounds of zinc, 202,586 pounds of copper, 19,815 ounces of gold, 605,528 ounces of silver and 16,600 tons of fluorspar.

The Iron King mine, situated at Humboldt, Arizona, handled 203,722 tons of ore during 1951, an increase of 202 tons over 1950. Metal prices in 1951 were somewhat higher than those of 1950. The average price of zinc was 18¢ and the average price of lead was 17½¢, compared with 13.866¢ and 13.296¢, respectively, in 1950. Gold and silver prices remained unchanged. The ore extracted came principally from the tenth and eleventh levels of the mine. The present main shaft was sunk 127 feet during the year and has now reached a depth of 1,739 feet. The twelfth and thirteenth levels are being prepared for the extraction of ore and stations have been cut on the fourteenth and fifteenth levels. The average grade of ore mined during the year showed no significant change from the grade of ore in the preceding year.

SHATTUCK DENN MINING CORPORATION

NOTES TO FINANCIAL STATEMENTS

NOTE A—BASIS OF VALUATION OF MINING PROPERTIES AND PLANT

Mines, mining claims and leaseholds and plant and equipment are carried in the Balance Sheet at cost to the Company or its predecessors. As the cost of the Iron King mine, the principal producing property of the Company, is completely offset by accumulated depletion, the net value of this mine shown in the Balance Sheet is zero.

No representation is made that the amounts included in the Balance Sheet for mining properties and buildings, machinery and equipment, either before or after deducting depletion or depreciation represent current or realizable values.

NOTE B—DEFICIT

The balance of deficit at December 31, 1951 includes the following:

Paid-in surplus October 31, 1925*, as adjusted		$4,318,110.71
Deficit at December 31, 1936 charged paid-in surplus in accordance with resolution of Board of Directors:		
Net Income through 1936, before deducting depletion	$ 54,214.72	
Depletion through 1936	1,126,259.99	1,072,045.27
Paid-in surplus December 31, 1936 (less deficit at that date)		$3,246,065.44
Net Income since 1936, before deducting depletion		5,272,634.59
		$8,518,700.03
Less:		
Depletion since 1936	$2,720,849.38	
Decreases resulting from sale of and from write-off of mining properties	3,686,449.51	
Distributions to stockholders since 1936	2,616,599.75	9,023,898.64
Deficit December 31, 1951, per Consolidated Balance Sheet		$ 505,198.61

*Date of merger of Shattuck Arizona Copper Company and Denn-Arizona Copper Company into Shattuck Denn Mining Corporation.

PERTINENT FIGURES
1951

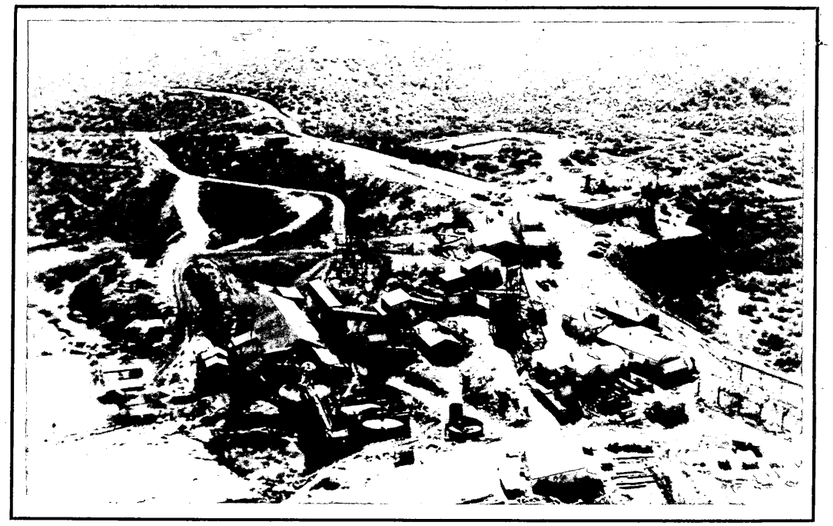
Production:

Zinc	15,725,624 pounds
Lead	5,929,653 pounds
Copper	202,586 pounds
Gold	19,815 ounces
Silver	605,528 ounces
Fluorspar	16,060 tons

Financial:

Earnings, before Income Taxes	$1,337,764.15
Federal and State Income Taxes	$ 493,000.00
Earnings, after Income Taxes	$ 844,764.15
Dividends — 75¢ per share	$ 599,562.00
Earnings retained in the business	$ 245,202.15
Working Capital	$2,132,298.54

SHATTUCK DENN MINING CORPORATION



IRON KING MINE

ANNUAL REPORT FOR THE YEAR 1951

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Form Approved.
Budget Bureau No. 42-R135.2.

Department of the Interior
Defense Minerals Administration
RECEIVED
NOV 3 1952

April
NOV. 6

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. dmea 2765
Metal or Mineral
Date Received 11-3-52
Estimated Cost
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: Shattuck Denn Mining Corporation, a Delaware corporation duly qualified in New Mexico. Principal officers are: Thomas Darcon, President; S. S. Shattuck, Vice President, R. J. Higgins, Assistant Vice President; N. D. Lafond, Secretary and Treasurer.

(*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 North 3/4 Section of Section 24, Township 13 North, Range 10, McKinley County, Haystack Mining District, New Mexico. Comprising lode claims - 27

(*b*) State any mine name by which the property is known. Shattuck Denn Mng. Corp. Uranium Branch

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

(*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.

(*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. See attached exhibit No. 3 (f)

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.

(*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. Excellent

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.

(c) The work will start within 30 days and be completed within 12 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.

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.). None

(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. None needed.

(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)? Yes

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

[X] Part in Money [X] Part in 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 October 31, 1952

Shattuck Denn Mining Corporation
(Applicant)

By Thomas Berdon President

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

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

3. Applicant's Property Rights:

(f) SEE CLAIM MAP, Also see attached Lease Agreement covering claim description.

The 27 claims are made up from 4 groups of claims. The location notices whereof being of record in the mining claim records in the Office of the Recorder of Gallup, McKinley County, New Mexico as follows:

South Peak Claims 1 thru 5:

South Peak No. 1, Book 10, Page 287
South Peak Nos. 2 & 3, Book 10, Page 286
South Peak Nos. 4 & 5, Book 10, Page 285

Blue Peak Claims 1 thru 7:

Blue Peak Nos. 1 & 2, Book 3, Page 298
Blue Peak Nos. 3 & 4, Book 3, Page 299
Blue Peak Nos. 5 & 6, Book 3, Page 300
Blue Peak No. 7, Book 3, Page 301

Red Top Claims 1 thru 10:

Red Top Nos. 1 & 2, Book 3, Page 262
Red Top Nos. 3 & 4, Book 3, Page 263
Red Top Nos. 5 & 6, Book 3, Page 264
Red Top Nos. 7 & 8, Book 3, Page 265
Red Top Nos. 9 & 10, Book 3, Page 266

Garcia Claims 1 thru 5:

Garcia Claims Nos. 1 - 5, recorded in Book 6, Page 424

Shattuck Penn Mining Corporation
120 Broadway
New York 5, New York

4. Physical Description:

(a) This property comprising approximately 540 acres made up of 27 claims covering the entire North 3/4 section of Section 24, Township 13 N, Range 10 formerly known as the Blue Peak Mining Company subsequently leased by Shattuck Penn Mining Corporation: operation under Blue Peak consisted of road construction approximately 2 miles, mining of some 3000 tons of uranium oxide both from surface exposures and two small adits.

April 1, 1952, Shattuck Penn commenced exploratory work along with preparation for continuing production. Exploration was done along the Brushy Basin stratum. The bed was stripped of overburden to expose the sandstone so that a study of the possible continuity of mineralization could be determined. This work entailed the moving of 60000 yards and exposing around the perimetery some 7500 feet in length of Brushy Basin sandstone. The underground openings consist of seven 9' x 10' adits spaced 150' to 200' apart ranging in length from 50' to 120'. A caterpillar diesel D4 loader is used for mucking underground.

(b) The mine to date has produced approximately 7000 tons of uranium oxide. 3000 tons production by Blue Peak had a grade of 0.24%. 4000 tons production by Shattuck Penn averaged 0.145 . Due to need of more exploratory work and greater depth of penetration, about 20 tons per day is currently being produced averaging about 0.1 %.

(c) Since initial exploratory work was started, about 770 feet of drifting has been done thru eight portals all having in some degree a continuity of commercial grade uranium. The pattern of occurrence seems to be thru the cant-sent locally fractured zones, spaced from 10' - 30' intervals. In these zones the ore appears in lenticular pods containing from a few tons to several hundred tons of varying grades .09% - .50% .

By obtaining exploration assistance we are convinced that a large tonnage of uranium bearing ore could be brought into production. This is based upon our experience of shipments and exploratory work already done. It is our opinion that given the proportionate funds to explore an area of 1000' in length and 1000' penetration or 1,000,000 sq. ft. that some 150,000 tons of plus .10% ore could be made available, assuming conservatively a 3' average thickness. Further exploration to the north by continued drifting on claims controlled by us as illustrated by maps could extend another 2500' thereby multiplying the possible available tonnage several times or approximately 500,000 tons. This particular medium bedded lense has a local area of approximately two miles by two miles. The stratum referred to under "Section 4 (c)" remains constant throughout this small elevated plateau.

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

4. Physical Description:

(c) The Zuni uplift is an asymmetrical, elliptical dome situated in the southeastern corner of the San Juan Basin. It is approximately 65 miles long by 40 miles wide, an area of about 2000 square miles and is elongated in a northwesternly direction. The uplift belongs to the southeastern portion of the Colorado Plateau physiographic province and abuts the basin and range province to the east and south.

The Jurassic sediments of this region are divided into the Glen Canyon group, the San Rafael group and the Morrison formation.

The Morrison formation is the stratum in which we have been exploring, producing and developing. The Morrison in this area is divided arbitrarily into three members; the Recapture Creek, the Westwater Canyon, and the Brushy Basin. The Recapture Creek member consists of interstratified red brown, chocolate brown, light green and white siltstone, shale and fine-grained sandstone with occasional ribs of coarse-grained channel sands and green thin limestone beds. The Westwater Canyon member is a medium to coarse-grained, buff sandstone which was deposited by fluctuating streams of considerable velocity. The contained trees and twigs and the infinite variety of superimposed channels are characteristic of this member. The Brushy Basin member consists chiefly of light green bentonitic mudstone included sandstone lenses. The upper portion of the Morrison is believed to have received considerable contribution by Pyroclastic Action.

The regional stress responsible for the Zuni dome appears to have been essentially one of vertical uplift, the consequence, most probably, of the injection of a subjacent tertiary pluton. The disturbed strata evidence tensional stresses almost completely. Faults made laterally into zones of fracturing and are conducive to deposition of uranium bearing solutions.

The BrushyBasin member immediately under the Dakota Sandstone Cliffs has proven the most promising and fertile stratum of the Morrison. All production, development and exploration by Shattuck Denn Mining Company has been done on this nearly horizontal bed which averages 20 feet in thickness. So far the other two members of the Morrison have not indicated enough values to warrant extensive exploration.

The principal industries of this region, in the approximate order of importance, are cattle raising, irrigated carrot farming, logging and pumice and fluorite mining. The main line of the Atchison, Topeka and Santa Fe Railway and U.S. Highway 66 follow the broad level valley cut out of the Triassic formation in the area. The recent developments of uranium ore near Grants should prove an important addition to the economic life of this region.

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

h. Physical Description:

(c) The property is easily accessible by improved road 15 miles northwest of Grants, New Mexico, thence 3 miles north off Santa Fe road to the mine. The ore is trucked 21 miles to Anaconda Mining Company's sampling plant at Bluewater. All necessary supplies are available either in Grants or Albuquerque 75 miles east. Employees live in Grants and are furnished transportation. Weather permits all year operations.

Shattuck Penn Mining Corporation
120 Broadway
New York 5, New York

5. The Exploration Project:

(b) We propose to explore completely by drifting and cross-cutting. Due to the peculiarity of the deposition of the mineral, dependable results cannot be obtained by either coring or vertical drilling. The only conclusive method is essentially by horizontal openings that might subsequently be serviceable as haulage ways and ventilation. Shattuck Penn Mining Corporation intends to continue exploration, if assistance is granted, to a point where enough tonnage is indicated to warrant economic operations.

As shown on maps the exploratory program will, as projected beyond present adits, consist of : Two 1000 ft. drifts and three 750 ft. drifts all spaced at approximately 200 ft. intervals, except the one farthest east which will be some 500 ft. easterly from the other four. Cross-cutting at irregular intervals will be done for further exploration, ventilation, safety and closer structural observation. Since diesel equipment is impossible in New Mexico underground operation, two caterpillar D4 yard and a half loaders will be used in lieu of track installation compressed air loaders, etc. A saving is possible by this method both in time and expenditures. By driving 9' x 10' openings lends itself to more efficient footage extraction as well as a sharper complete view of an average 20 ft. thick bed.

The total footage including cross-cutting under the proposed project will amount to 3550 feet.

(d) The applicant and its predecessor corporations have been in the mining business for nearly 50 years. It and its subsidiaries have operated mines producing copper, lead, zinc, gold, silver and fluorspar in large quantities and have examined, explored and tested a wide variety of other mineral projects. It has also conducted milling and concentrating plants on a substantial scale. Its present business operations and financial condition are set forth in its last published (1951) annual report, four copies of which are enclosed herewith. It leased the uranium property referred to in this application early in 1952 and has conducted exploratory work since that time and has also shipped ore to the stockpile now being accumulated at the uranium treatment plant being constructed by Anaconda Copper Company near Grants. These uranium operations will be directly supervised by Mr. T. W. Newell and Mr. Frank Garrett, both of whom have been employed by the applicant for many years, have held responsible positions and have had wide experience in mining. General supervision of the operations will be under the corporate officers of the applicant.

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

6. Estimate of Cost 197851.43

(a) Independent Contracts - None

(b) Labor, supervision, consultants	Number of Employees	Rate Per Hour or Month	Totals
Supervision	1	600.00	5400.00
Miners	10	1.50	30420.00
Loadermen	2	1.325	7792.20
Laborers	8	.75	12160.00
Clerk	1	200.00	1800.00
Stenographer	1	150.00	1350.00
Assayer	1	500.00	4500.00
Laboratory Helper	1	200.00	1800.00
Total estimated labor including overtime			65230.20

(c) Operating Material and Supplies

Explosives	12250.00
Gasoline and Fuel Oils	9[illegible]7.20
Timbering	7045.50
Pipe Lines	1925.00
Drill Steel and Bits	10691.28
Air Drill Repair Parts	7823.00
Equipment Repairs and Parts	4920.00
Tools and Sundry	23180.00
Total estimated supplies	70521.98

(d) Operating Equipment (New and Rented)

Water Tanks	900.00
Air Drills	2356.00
Caterpillar Loader	11000.00
Caterpillar Loader - Rental	9000.00
Compressor - Rental	2856.00
Pressure Tanks	250.00
Office Equipment	2500.00
Total estimated equipment	28862.00

(f) New Buildings 5000.00

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

6. Estimate of Cost (Continued)

(g) Miscellaneous

Workman's Compensation	2330.90
Unemployment Insurance	1794.90
Annuity Tax, Federal	951.45
Liability Insurance	110.00
Total Miscellaneous	5237.25

(h) Contingencies 15000.00

Equipment to be Furnished by Applicant

3	Rock Drills, complete with Jack Legs	1500.00
1	Wagon Drill	1000.00
1	4 x 4 Willys Station Wagon	2635.61
1	P3710 Rotary Grinder for Bits	1[illegible]7.75
2	Geiger Counters	566.07
1	Ford Panel Truck	1300.00
2	Compressors - 365 cfm and 315 cfm	6000.00
3	Double Drum Hoisters, 1 7½ HP - 2 5HP	3500.00
500'	3/4" Air Hose	240.00
300'	1/2" Water Hose	170.00
3	Pressure Tanks	150.00
1200'	1½" Pipe	312.60
Total		16[illegible]2.43

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

7. Sharing of Cost of Project

As stated on Form RF-103 we are prepared to furnish our share of the costs which under the regulations of RFC will be $19,785.14, or 10% of the total cost.

We further propose that our share of said cost be furnished by supplying equipment to be used on the project which has a value of $16,162.43, and that the remainder of our share will be contributed in money in the sum of $3,622.71. A list of said equipment appears at the end of the accompanying paper on which there is an Estimate of Cost.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 3 1952

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. dmea 2765
Metal or Mineral
Date Received 11-3-52
Estimated Cost
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: Shattuck Denn Mining Corporation, a Delaware corporation duly qualified in New Mexico. Principal officers are: Thomas Bardon, President; S. S. Shattuck, Vice President, R. J. Higgins, Assistant Vice President; N. E. LaMond, Secretary and Treasurer.

(*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 Lots 3/4 Section 31 Section 32, Township 19 South, Range 10, Hinkley County, Keystone Mining District, New Mexico. Containing 1060 acres - 27

(*b*) State any mine name by which the property is known. Shattuck Denn Mng. Corp. Santa Fe Peak

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise LSU000

(*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.

(*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. CO Location Order No. 3 (2)

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.

(*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. Excellent

16—66551-1

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.

(*c*) The work will start within 30 days and be completed within 12 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.

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.). None

(*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. None needed.

(*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)? Yes

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

[X] Part in Money [X] Part in 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 October 31, 1952

Shattuck Denn Mining Corporation
(Applicant)

By Thomas V. Bardoc President

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

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

3. Applicant's Property Rights:

(f) SEE CHAIN MAP, Also see attached Lease Agreement covering claim description.

The 27 claims are made up from 4 groups of claims. The location notices thereof being of record in the mining claim records in the Office of the Recorder of Gallup, McKinley County, New Mexico as follows:

<u>South Peak Claims 1 thru 5:</u>

South Peak No. 1, Book 10, Page 287
South Peak Nos. 2 & 3, Book 10, Page 286
South Peak Nos. 4 & 5, Book 10, Page 285

<u>Blue Peak Claims 1 thru 7:</u>

Blue Peak Nos. 1 & 2, Book 3, Page 298
Blue Peak Nos. 3 & 4, Book 3, Page 299
Blue Peak Nos. 5 & 6, Book 3, Page 300
Blue Peak No. 7, Book 3, Page 301

<u>Red Top Claims 1 thru 10:</u>

Red Top Nos. 1 & 2, Book 3, Page 262
Red Top Nos. 3 & 4, Book 3, Page 263
Red Top Nos. 5 & 6, Book 3, Page 264
Red Top Nos. 7 & 8, Book 3, Page 265
Red Top Nos. 9 &10, Book 3, Page 266

<u>Garcia Claims 1 thru 5:</u>

Garcia Claims Nos. 1 - 5, recorded in Book 6, Page 424

Shattuck Denn Mining Corporation
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New York 5, New York

4. Physical Description:

(a) This property comprising approximately 540 acres made up of 27 claims covering the entire North 3/4 section of Section 24, Township 13 N°, Range 10 formerly known as the Blue Peak Mining Company subsequently leased by Shattuck Denn Mining Corporation: operation under Blue Peak consisted of road construction approximately 2 miles, mining of some 3000 tons of uranium oxide both from surface exposures and two small adits.

April 1, 1952, Shattuck Denn commenced exploratory work along with preparation for continuing production. Exploration was done along the Brushy Basin stratum. The bed was stripped of overburden to expose the sandstone so that a study of the possible continuity of mineralization could be determined. This work entailed the moving of 68000 yards and exposing around the periphery some 7500 feet in length of Brushy Basin sandstone. The underground openings consist of seven 9' x 10' adits spaced 150' to 200' apart ranging in length from 50' to 120'. A catorpillar diesel D4 loader is used for mucking underground.

(b) The mine to date has produced approximately 7000 tons of uranium oxide. 3000 tons production by Blue Peak had a grade of 0.24%. 4000 tons production by Shattuck Denn averaged 0.145%. Due to need of more exploratory work and greater depth of penetration, about 20 tons per day is currently being produced averaging about 0.1[illegible]%.

(c) Since initial exploratory work was started, about 770 feet of drifting has been done thru eight portals all having in some degree a continuity of commercial grade uranium. The pattern of occurrence seems to be thru the east-west locally fractured zones, spaced from 10' - 30' intervals. In these zones the ore appears in lenticular pods containing from a few tons to several hundred tons of varying grades .09% - .50%.

By obtaining exploration assistance we are convinced that a huge tonnage of uranium bearing ore could be brought into production. This is based upon our experience of shipments and exploratory work already done. It is our opinion that given the proportionate funds to explore an area of 1000' in length and 1000' penetration or 1,000,000 sq. ft. that some 150,000 tons of plus .10% ore could be made available, assuming conservatively a 3' average thickness. Further exploration to the north by continued drifting on claims controlled by us and illustrated by maps could extend another 2500' thereby multiplying the possible available tonnage several times or approximately 500,000 tons. This particular enriched bedded lense has a local area of approximately two miles by two miles. The stratum referred to under "Geology Section 4 (c)" remains constant throughout this small elevated plateau.

Shattuck Denn Mining Corporation
120 Broadway
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4. Physical Description:

(c) The Zuni uplift is an asymmetrical, elliptical dome situated in the southeastern corner of the San Juan Basin. It is approximately 65 miles long by 40 miles wide, an area of about 2000 square miles and is elongated in a northwesternly direction. The uplift belongs to the southeastern portion of the Colorado Plateau physiographic province and abuts the basin and range province to the east and south.

The Jurassic sediments of this region are divided into the Glen Canyon group, the San Rafael group and the Morrison formation.

The Morrison formation is the stratum in which we have been exploring, producing and developing. The Morrison in this area is divided arbitrarily into three members; the Recapture Creek, the Westwater Canyon, and the Brush Basin. The Recapture Creek member consists of interstratified red brown, chocolate brown, light green and white siltstone, shale and fine-grained sandstone with occasional ribs of coarse-grained channel sands and green thin limestone beds. The Westwater Canyon member is a medium to coarse-grained, buff sandstone which was deposited by fluctuating streams of considerable velocity. The contained trees and twigs and the infinite variety of superimposed channels are characteristic of this member. The Brushy Basin member consists chiefly of light green bentonitic mudstone included sandstone lenses. The upper portion of the Morrison is believed to have received considerable contribution by Pyroclastic Action.

The regional stress responsible for the Zuni dome appears to have been essentially one of vertical uplift, the consequence, most probably, of the injection of a subjacent tertiary pluton. The disturbed strata evidence tensional stresses almost completely. Faults grade laterally into zones of fracturing and are conducive to deposition of uranium bearing solutions.

The BrushyBasin member immediately under the Dakota Sandstone Cliffs has proven the most promising and fertile stratum of the Morrison. All production, development and exploration by Shattuck Denn Mining Company has been done on this nearly horizontal bed which averages 20 feet in thickness. So far the other two members of the Morrison have not indicated enough values to warrant extensive exploration.

The principal industries of this region, in the approximate order of importance, are cattle raising, irrigated carrot farming, logging and pumice and fluorite mining. The main line of the Atchison, Topeka and Santa Fe Railway and U.S. Highway 66 follow the broad level valley cut out of the Triassic formation in the area. The recent developments of uranium ore near Grants should prove an important addition to the economic life of this region.

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

4. Physical Description:

(a) The property is easily accessible by improved road 15 miles northwest of Grants, New Mexico, thence 3 miles north off San Mateo road to the mine. The ore is trucked 21 miles to Anaconda Mining Company's sampling plant at Bluewater. All necessary supplies are available either in Grants or Albuquerque 76 miles east. Employees live in Grants and are furnished transportation. Weather permits all year operations.

Shattuck Denn Mining Corporation
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5. The Exploration Project:

(b) We propose to explore completely by drifting and cross-cutting. Due to the peculiarity of the deposition of the uranium, dependable results cannot be obtained by either coring or wagon drilling. The only conclusive method is essentially by horizontal openings that might subsequently be serviceable as haulage ways and ventilation. Shattuck Denn Mining Corporation intends to continue exploration, if assistance is granted, to a point where enough tonnage is indicated to warrant economic operations.

As shown on maps the exploratory program will, as projected beyond present adits, consist of : Two 1000 ft. drifts and three 750 ft. drifts all spaced at approximately 200 ft. intervals, except the one fartherest east which will be some 500 ft. easterly from the other four. Cross-cutting at irregular intervals will be done for further exploration, ventilation, safety and closer structural observation. Since diesel equipment is permissible in New Mexico underground operation, two caterpillar D4 yard and a half loaders will be used in lieu of track installation compressed air loaders, etc. A saving is possible by this method both in time and expenditures. By driving 9' x 10' openings lends itself to more efficient footage extraction as well as a nearer complete view of an average 20 ft. thick bed.

The total footage including cross-cutting under the proposed project will amount to 5550 feet.

(d) The applicant and its predecessor corporations have been in the mining business for nearly 50 years. It and its subsidiaries have operated mines producing copper, lead, zinc, gold, silver and fluorspar in large quantities and have examined, explored and tested a wide variety of other mineral projects. It has also conducted milling and concentrating plants on a substantial scale. Its present business operations and financial condition are set forth in its last published (1951) annual report, four copies of which are enclosed herewith. It leased the uranium property referred to in this application early in 1952 and has conducted exploratory work since that time and has also shipped ore to the stockpile now being accumulated at the uranium treatment plant being constructed by Anaconda Copper Company near Grants. These uranium operations will be directly supervised by Mr. T. W. Newell and Mr. Frank Garrett, both of whom have been employed by the applicant for many years, have held responsible positions and have had wide experience in mining. General supervision of the operations will be under the corporate officers of the applicant.

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

5. Estimate of Cost 197[illegible]1.43

(a) Independent Contracts - None

(b) Labor, supervision, consultants	Number of Employees	Rate Per Hour or Month	Totals
Supervision	1	600.00	5400.00
Miners	10	1.50	30420.00
Loadermen	2	1.325	7792.20
Laborers	8	.75	12168.00
Clerk	1	200.00	1800.00
Stenographer	1	150.00	1350.00
Assayor	1	500.00	4500.00
Laboratory Helper	1	200.00	1800.00
Total estimated labor including overtime			65230.20

(c) Operating Material and Supplies

Explosives	12250.00
Gasoline and Fuel Oils	[illegible]7.20
Timbering	7845.50
Pipe Lines	1925.00
Drill Steel and Bits	10691.28
Air Drill Repair Parts	7823.00
Equipment Repairs and Parts	4920.00
Tools and Sundry	23180.00
Total estimated supplies	78521.98

(d) Operating Equipment (New and Rented)

Water Tanks	900.00
Air Drills	2356.00
Caterpillar Loader	11000.00
Caterpillar Loader - Rental	9000.00
Compressor - Rental	2356.00
Pressure Tanks	250.00
Office Equipment	2500.00
Total estimated equipment	28362.00

(f) New Buildings [illegible]000.00

Shattuck Den[illegible] Mining Corporation
120 Broadway
New York 5, New York

6. Estimate of Cost (Continued)

(g) Miscellaneous

Workman's Compensation	2330.90
Unemployment Insurance	1794.90
Annuity Tax, Federal	951.45
Liability Insurance	110.00
Total Miscellaneous	5237.25

(h) Contingencies 15000.00

Equipment to be Furnished by Applicant

3	Rock Drills, complete with Jack Legs	1500.00
1	Wagon Drill	1500.00
1	4 x 4 Willys Station Wagon	2686.61
1	23710 Rotary Grinder for Bits	187.75
2	Geiger Counters	566.07
1	Ford Panel Truck	1300.00
2	Compressors - 365 cfm and 315 cfm	6000.00
3	Double Drum Slushers, 1 7½ HP - 2 5HP	1500.00
500'	3/4" Air Hose	240.00
300'	1/2" Water Hose	120.00
3	Pressure Tanks	150.00
1200'	1½" Pipe	312.00
Total		16162.43

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

7. Sharing of Cost of Project

As stated on Form MF-103 we are prepared to furnish our share of the costs which under the regulations of DMEA will be $19,785.14, or 10% of the total cost.

We further propose that our share of said cost be furnished by supplying equipment to be used on the project which has a value of $16,162.43, and that the remainder of our share will be contributed in money in the sum of $3,622.71. A list of said equipment appears at the end of the accompanying paper on which there is an Estimate of Cost.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 3 1952

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. dmea 2965
Metal or Mineral
Date Received 11-3-52
Estimated Cost
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: Shattuck Denn Mining Corporation, a Delaware corporation duly qualified in New Mexico. Principal officers are: Thomas Bardon, President; S. S. Shattuck, Vice President, R. J. Higgins, Assistant Vice President; N. E. LaMond, Secretary and Treasurer.

(*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 North 3/4 Section of Section 24, Township 13 North, Range 10, McKinley County, Haystack Mining District, New Mexico. Comprising lode claims - 27

(*b*) State any mine name by which the property is known. Shattuck Denn Mng. Corp. Uranium Branch

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

(*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.

(*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. See attached exhibit No. 3 (f)

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.

(*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. Excellent

16—66551-1

5. *The exploration project.*—(*a*) [redacted]e the mineral or minerals for which you wis[redacted] 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.

(*c*) The work will start within 30 days and be completed within 12 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.

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.). None

(*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.

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(*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. None needed.

(*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.

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(*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)? Yes

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

[X] Part in Money [X] Part in 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 October 31, 1952

Shattuck Denn Mining Corporation
(Applicant)

By Thomas Bardon President

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

Shattuck Denn Mining Corporation
120 Broadway
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3. Applicant's Property Rights:

(f) SEE CLAIM MAP, Also see attached Lease Agreement covering claim description.

The 27 claims are made up from 4 groups of claims. The location notices wereof being of record in the mining claim records in the Office of the Recorder of Gallup, McKinley County, New Mexico as follows:

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Shattuck Denn Mining Corporation
120 Broadway
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4. Physical Description:

(a) This property comprising approximately 480 acres made up of 27 claims covering the entire North 3/4 section of Section 24, Township 13 N°, Range 10 formerly known as the Blue Peak Mining Company subsequently leased by Shattuck Denn Mining Corporation: operation under Blue Peak consisted of road construction approximately 2 miles, mining of some 3000 tons of uranium oxide both from surface exposures and two small adits.

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4. Physical Description:

(c) The Zuni uplift is an asymmetrical, elliptical dome situated in the southeastern corner of the San Juan Basin. It is approximately 65 miles long by 40 miles wide, an area of about 2000 square miles and is elongated in a northwesternly direction. The uplift belongs to the southeastern portion of the Colorado Plateau physiographic province and abuts the basin and range province to the east and south.

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4. Physical Description:

(d) The property is easily accesible by improved road 15 miles northwest of Grants, New Mexico, thence 3 miles north off San Mateo road to the mine. The ore is trucked 21 miles to Anaconda Mining Company's sampling plant at Bluewater. All necessary supplies are available either in Grants or Albuquerque 76 miles east. Employees live in Grants and are furnished transportation. Weather permits all year operations.

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The total footage including cross-cutting under the proposed project will amount to 5550 feet. (Map - 5250 E. drift should be 300' further E.)

(d) The applicant and its predecessor corporations have been in the mining business for nearly 50 years. It and its subsidiaries have operated mines producing copper, lead, zinc, gold, silver and fluorspar in large quantities and have examined, explored and tested a wide variety of other mineral projects. It has also conducted milling and concentrating plants on a substantial scale. Its present business operations and financial condition are set forth in its last published (1951) annual report, four copies of which are enclosed herewith. It leased the uranium property referred to in this application early in 1952 and has conducted exploratory work since that time and has also shipped ore to the stockpile now being accumulated at the uranium treatment plant being constructed by Anaconda Copper Company near Grants. These uranium operations will be directly supervised by Mr. T. W. Newell and Mr. Frank Garrett, both of whom have been employed by the applicant for many years, have held responsible positions and have had wide experience in mining. General supervision of the operations will be under the corporate officers of the applicant.

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

6. Estimate of Cost — 197851.43

(a) Independent Contracts - None

(b) Labor, supervision, consultants	Number of Employees	Rate Per Hour or Month	Totals
Supervision	1	600.00	5400.00
Miners	10	1.50	30420.00
Loadermen	2	1.825	7792.20
Laborers	8	.75	12168.00
Clerk	1	200.00	1800.00
Stenographer	1	150.00	1350.00
Assayor	1	500.00	4500.00
Laboratory Helper	1	200.00	1800.00
Total estimated labor including overtime			65230.20

(c) Operating Material and Supplies

Explosives	12250.00
Gasoline and Fuel Oils	9887.20
Timbering	7845.50
Pipe Lines	1925.00
Drill Steel and Bits	10691.28
Air Drill Repair Parts	7823.00
Equipment Repairs and Parts	4920.00
Tools and Sundry	23180.00
Total estimated supplies	78521.98

(d) Operating Equipment (New and Rented)

Water Tanks	900.00
Air Drills	2356.00
Caterpillar Loader	11000.00
Caterpillar Loader - Rental	9000.00
Compressor - Rental	2856.00
Pressure Tanks	250.00
Office Equipment	2500.00
Total estimated equipment	28862.00

(f) New Buildings — 5000.00

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

6. Estimate of Cost (Continued)

(g) Miscellaneous

Workman's Compensation	2380.90
Unemployment Insurance	1794.90
Annuity Tax, Federal	951.45
Liability Insurance	110.00
Total Miscellaneous	5237.25

(h) Contingencies 15000.00

Equipment to be Furnished by Applicant.

3	Rock Drills, complete with Jack legs	1500.00
1	Wagon Drill	1600.00
1	4 x 4 Willys Station Wagon	2686.61
1	RS710 Rotary Grinder for Bits	187.75
2	Geiger Counters	566.07
1	Ford Panel Truck	1300.00
2	Compressors - 365 cfm and 315 cfm	6000.00
3	Double Drum Slushers, 1 7½ HP - 2 5HP	1500.00
500'	3/4" Air Hose	240.00
300'	1/2" Water Hose	120.00
3	Pressure Tanks	150.00
1200'	1½" Pipe	312.00
Total		16162.43

Shattuck Denn Mining Corporation
120 Broadway
New York 5, New York

7. Sharing of Cost of Project

As stated on Form MF-103 we are prepared to furnish our share of the costs which under the regulations of DMEA will be $19,785.14, or 10% of the total cost.

We further propose that our share of said cost be furnished by supplying equipment to be used on the project which has a value of $16,162.43, and that the remainder of our share will be contributed in money in the sum of $3,622.71. A list of said equipment appears at the end of the accompanying paper on which there is an Estimate of Cost.

MINING LEASE

THIS INDENTURE, made and entered into this 20th day of March, 1952, by and between AL GREER, JOHN A. GRAVES, H. N. LARUE, and CHARLES RIECKE, of Aztec, New Mexico, and W. P. GREER, of Continental Divide, New Mexico, Co-partners d/b/a Blue Peak Mining Company, jointly and severally and being joined herein by their respective wives, FAY GREER, JANE GRAVES, RUTH LARUE, LENA RIECKE and NELL GREER, hereinafter called "Lessors", and SHATTUCK-DENN MINING CORPORATION, a Delaware corporation authorized to do business within the State of New Mexico, hereinafter called "Lessee",

WITNESSETH:

WHEREAS, Lessors are the owners by location of certain unpatented lode mining claims, property, minerals and mineral rights described and identified as "Blue Peak Claims" and "Red Top Claims" as more particularly described and set out in "Exhibit A" attached hereto and incorporated herein by reference, and

WHEREAS, lessors are lessees in two certain mining leases described and identified as "Garcia Lease" and"Minoletti Lease", copies of which, together with amendments thereto, are attached hereto and incorporated herein by reference, and

WHEREAS, lessee desires to obtain the exclusive right and privilege to enter into and upon said lands and property for the purpose of prospecting, exploring and testing the same for uranium and other minerals, excepting oil, gas and coal, and to develop, mine, extract, mill, sell and dispose of the same, and

WHEREAS, lessors are willing to grant unto lessee and to its successors and assigns such rights and privileges upon the terms and conditions hereinafter set forth,

COPY OF LEASE

GREER et al.

to

SHATTUCK DENN MINING CORPORATION

120 Broadway

New York 5, N.Y.

Submitted with Form MF-103
and application of Lessee
for DMEA exploration loan
on uranium project near
Grants, N.M.

NOW, THEREFORE, in consideration of the sum of Fourteen Thousand Dollars ($14,000.00) annual rental paid by the lessee to the lessors, the receipt whereof is hereby acknowledged, and in further consideration of the covenants and agreements by the said lessee to be kept and performed, said lessors have demised, leased and let, and by these premises do demise, lease and let unto said lessee all of those certain unpatented lode mining claims, property, mining ground, minerals and mineral rights excepting oil, gas and coal (hereinafter called "demised property") situate in McKinley County, State of New Mexico, as the same is more particularly described and designated in "Exhibit A" attached hereto which by reference is incorporated herein and made a part hereof, together with all of lessor's right, title and interest in and to the "Garcia Lease" and "Minoletti Lease" and the property demised therein, as the same is more particularly described and designated in said leases which are attached hereto and incorporated herein by reference; also including any and all right, title and interest of said lessors in and to any and all veins, lodes or mineral deposits contained in said demised property or any part thereof, and all rights of way, easements, water and water rights, including all rights of every kind and nature which are useful, convenient for use, or required by lessee in the work and operations and mining to be performed by lessee hereunder;

TO HAVE AND TO HOLD unto said lessee and to its successors and assigns for the primary term of one (1) year, beginning as of April 1, 1952 and terminating March 31, 1953. This lease shall automatically continue and be extended thereafter for successive year to year terms, upon the condition and in the event of lessee's payment of the annual rental herein provided, and lessee's performance of all of the covenants and conditions hereinafter set forth, provided said lease is not sooner forfeited, terminated or surrendered as hereinafter provided.

And in consideration of such demise, and of said royalties, covenants and agreements to be paid, kept, performed by lessee, it is hereby mutually covenanted and agreed by the parties hereto, and each of them as follows, to-wit:

1. That lessee shall forthwith have and is hereby granted by lessors the exclusive right, license and privilege to enter into and upon said demised property and to drill and excavate therein and thereon drill holes, pits, tunnels, shafts and other excavations and to conduct therein and elsewhere such surface explorations, investigations, sampling, metallurgical work and other work, similar as well as dissimilar, as lessee in its sole judgment and discretion may desire for the purpose of ascertaining to the extent that lessee in its judgment and discretion may wish to know any and all facts relative to the geology of and ores in, upon or under said demised property, and mining, milling and marketing thereof. All such work shall be conducted by lessee as in its judgment and discretion deems best, and in a good and minerlike fashion. In the event such minerals and materials are encountered in said demised property in quantities which, in the opinion of lessee, makes it desirable to mine, treat, dispose of and sell the same, then said lessee shall be and is hereby given the exclusive right, license and privilege of developing, mining, extracting, processing, treating, milling, marketing and selling the same at such times and at such price and in such manner as lessee shall deem best.

2. In addition to all other rights and privileges herein granted to lessee, it is agreed that lessee shall also forthwith have and is hereby granted by said lessors the right and privilege to do all things which lessee may deem expedient, convenient or desirable as part of or incidental to the use and enjoyment of the demised property for the purposes herein contemplated. Such rights

and privileges shall include, but shall not be limited to the construction and maintenance of roads, easements and rights of way, pipe lines, telephone lines and other utilities, transportation facilities of all kinds, drilling and using water wells, construction of shops, plants, mining facilities, structures, buildings of every kind and nature, and such other rights and privileges as are incident to winning said minerals from the ground and processing and disposing of the same.

3. Lessee shall, and hereby agrees to indemnify, protect and save harmless said lessors from and against the following specific claims, demands and damages (and none other) arising out of lessee's negligence, contract agreements or actionable faults in connection with lessee's work and operations hereunder, to-wit:

(a) to property of third persons;

(b) to third persons by injury or death;

(c) lien and lien claims on account of labor performed upon or materials furnished to the demised property at the instance of lessee;

(d) contract obligations of the lessee entered into under or using the name "Blue Peak Mining Company".

Lessee agrees to carry such insurance covering all persons working in or on said demised property for lessee as will fully comply with the provisions of the statutes of the State of New Mexico covering workmen's compensation and occupational disease as are now in force or as they may hereafter be changed or amended. Further, lessee agrees to comply with all of the terms and provisions of all of the applicable laws of the State of New Mexico and of the United States of America as now existing or hereafter amended, pertaining to social security, unemployment compensation, wages, hours and conditions of labor and to indemnify and hold lessors harmless from payment of any damages occasioned by lessee's failure to comply with said laws.

4. Lessors covenant and warrant that they have made no conveyance of said property and rights, and that said claims described in Exhibit A are located according to law and lessors are the owners of and entitled to possession thereof, subject only to the paramount rights of the government of the United States, and lessors further covenant and warrant that the leases described as "Garcia Lease" and "Minoletti Lease" are in full force and effect, and lessors have not violated any terms or conditions in said leases set forth by them to be kept and performed.

It is agreed by the parties hereto that lessee shall pay over to the lessors any and all royalties or bonus shares due the lessors of the Garcia and Minoletti leases and lessors agree to pay over to and fully account to the owners of the said Garcia and Minoletti leases for such royalties and/or bonus payments, and to make proof thereof to lessee. The lessors agree that the lessee shall have the right at any time during the currency of this agreement, in the event lessors shall be in default in making such payments under the terms of the Garcia and Minoletti leases, to pay any payment for the lessors, and in such event lessee shall be entitled to credit on this agreement for any payments so made by lessee for the account of the lessors.

5. On any ores mined and sold by lessee from the demised property, Lessee agrees to pay lessors a percentage royalty of fifteen percent (15%) of the gross proceeds of sale of said crude ore or any concentrates or other products produced therefrom, as paid for by the Atomic Energy Commission or other government authorized agents, mill or other buyer, less any allowances, costs, moneys or disbursements for the following specific items:

(i) Transportation of ores in excess of haulage allowance paid by the Atomic Energy Commission for the first one hundred miles.

(ii) Allowances paid to lessee by the Atomic Energy Commission or other government authorized agency for exploration or development of ores.

(iii) Such costs, if any, chargeable to or paid by the lessee for treatment or beneficiation of ores, which cost would be the actual cost without any milling profit.

Lessee agrees to pay the above percentage royalty on or before the 25th day of the month next following the receipt by lessee of payment for said ores.

In addition to all other payments herein provided, lessors shall be entitled to receive all of the remaining bonus paid by or to be paid by the Atomic Energy Commission of the United States of America from the claim known as "Garcia No. 1". It is also agreed by and between the parties that the Lessee shall notify the lessors of the smelter and/or market at which the said minerals or metals are sold, and the lessors shall be entitled to receive a copy of the mill, smelter or market settlement sheet given at the time of such sale.

6. Lessee agrees to pay the lessors during each contract year during the existence of this lease contract, on or before the 1st day of April of each year, an annual rental in the sum of Fourteen Thousand Dollars ($14,000.00) in consideration of the rights and privileges herein granted to Lessee, in addition to the percentage royalties provided in Paragraph 5 hereof.

7. Lessee agrees to promptly pay when due all taxes levied and assessed upon any equipment, personal property or improvements placed upon the demised property by lessee, including also any taxes measured on mineral production, but lessee shall not be liable for, or obligated to pay any other tax, levy, excise or assessment against lessors or the demised property.

8. Lessee, may, at any time during the currency of this lease install upon or remove from said demised property any tools, machinery, equipment, supplies or facilities owned or furnished by it. If by forfeiture or otherwise the rights of lessee hereunder are terminated and lessee quits possession of said demised property, lessee or its agents, servants or employees may remove such property so installed or stored upon the demised property; said removal to be at lessee's cost and expense and may be accomplished within 120 days following surrender of possession of said demised property.

9. Lessee agrees to do and perform all annual assessment work on all of the unpatented mining claims described in Exhibit A, and the "Garcia Lease" and "Minoletti Lease", or take such action in lieu thereof as may be required or permitted by law, and furnish lessors with a copy thereof by May 1 of each year during the time this lease remains in force and effect. In addition the lessee specifically agrees to do the road construction work and minimum development work required to be performed in paragraphs 13 and 14 of the "Minoletti Lease" attached hereto.

10. For any breach of any covenant or agreement herein specified to be kept and performed by lessee, lessors may, following thirty (30) days' written notice, terminate this lease agreement by delivering to lessee such notice setting forth the breach of covenant or agreement being complained of; provided, however, that if lessee is thus in default as claimed by lessors in said notice, it is agreed that lessee may, within thirty (30) days following receipt of such notice, avoid such termination and cure said default by initiating and diligently pursuing such act as may be necessary to perform the covenant or agreement breached. If such steps to cure such default have not been thus initiated within

said thirty day period, said termination shall thereupon become effective, and all lessee's rights hereunder shall be forfeited, except only the right of lessee to remove its property from said demised property as hereinabove provided.

11. Lessee agrees to keep books and accounts covering its operations and the sale of ores hereunder, and shall permit lessors or their agents, servants or employees, at all reasonable hours to examine said books and accounts bearing upon percentage royalties due lessors. Lessee further agrees to make and keep accurate maps of all its workings in the demised property and lessors shall have access thereto and the right to make copies thereof, at all reasonable hours.

12. It is expressly agreed that lessee may at any time hereafter terminate this lease agreement, and be freed from any and every liability and obligation hereunder, or in any manner arising out of any term, covenant or condition hereof, excepting only the following obligations which by the express provisions hereof have then accrued and become fixed and unconditional, to-wit:

(a) lessee's obligation to pay percentage royalties on ores mined and sold.

(b) lessee's obligation to keep the demised property free from liens or encumbrances occasioned by lessee's act or default.

(c) lessee's obligation to pay certain taxes specifically herein specified.

Said termination by lessee in this paragraph contemplated may be effected by written notice served upon lessors, setting forth the intention of lessee to terminate this lease and to discontinue performance thereunder; said notice to be signed by or on behalf of lessee, and enclosed in a sealed envelope addressed to lessors at Post Office Box No. 296, Aztec, New Mexico, and

deposited in the United States mail, duly registered and postage prepaid.

Upon termination of lessee's rights hereunder by forfeiture or otherwise, all money theretofore paid lessors shall be kept by lessors and retained as liquidated damages for any and every breach hereof by lessee. Upon any such termination by lessors, as hereinabove set forth, or by lessee as in this paragraph contemplated, lessee shall have no further or other obligation under this instrument.

13. Any notice or other instrument in writing herein authorized to be given or delivered to lessors or served upon lessors may be served upon lessors, or sent to lessors by registered mail, postage prepaid, addressed to lessors at Post Office Box 296, Aztec, New Mexico, or to such other address as lessors may from time to time designate in writing, and any notice or other instrument herein authorized to be given or delivered to lessee or served upon lessee may be served upon lessee or its duly authorized agents or officers or sent to lessee by registered mail, postage prepaid, addressed to lessee at 120 Broadway, New York 5, New York, or at such other address as lessee may designate from time to time in writing.

14. Lessee does hereby covenant and agree with the said lessors to work the said demised premises in a manner necessary to good and economical mining, so as to take out the greatest amount of ore possible, with due regard to the safety, development and preservation of said premises as a workable mine.

15. Lessee agrees to allow lessors and their duly authorized agents to enter upon and into said premises and any and all parts thereof, at any reasonable time for the purpose of inspecting the same, but lessors and their duly authorized agents shall not hinder or interrupt the work or operation of said premises by the lessee.

16. Lessee covenants and agrees that it will keep at all times the drifts, shafts, tunnels and other passages and workings of said demised premises thoroughly drained, and clear of loose rock or rubbish of all kinds, unless prevented by extraordinary mining casualty.

17. Lessee covenants and agrees to deliver possession of said demised premises with appurtenances and all improvements in good order and condition with all shafts and tunnels and other passages thoroughly clear of rubbish and debris, and properly drained in all points, ready for immediate continued working upon the termination or forfeiture of this lease.

18. It is agreed by and between the parties hereto that upon notice of a default on the part of the lessee as herein provided, and in the event the parties hereto cannot agree as to the existence of a default, or cannot agree as to whether or not such default has been properly cured, then in that event each party hereto shall select a third person agreeable to each of the parties hereto as arbiter to determine the facts in dispute, and the parties hereto agree to be bound by the decision of the arbiter. In the event that the parties hereto are unable to agree upon such third person, then in that event, the parties agree to jointly petition the presiding Judge of the United States District Court for the District of New Mexico to appoint such a third person.

19. Time is of the essence of this mining lease.

20. Lessee agrees that no assignment of its rights hereunder shall be made without notifying lessors in writing within five (5) days from the date of such assignment.

21. The provisions hereof, together with the terms, covenants and conditions of the "Garcia Lease" and "Minoletti Lease" attached hereto and made a part hereof, and all the premises,

covenants and agreements of any of the parties hereto shall be binding upon the parties respectively, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the lessors have hereunto set their hands and the lessee has caused these presents to be duly executed by its proper officers being hereunto duly authorized, the day and year first above written.

/s Ruth LaRue	/s H. N. LaRue
/s Fay Greer	/s Al Greer
/s Jane Graves	/s John A. Graves
/s Lena Riecke	/s Charles Riecke
/s Nell Greer	/s W. P. Greer

LESSORS

SHATTUCK-DENN MINING CORPORATION,
a Delaware corporation.

By /s Thomas Bardon
Its President

ATTEST:

s/ Norman E. LaMond
Secretary

State of California)
) ss
County of San Diego)

On this 26th day of March, 1952, before me personally appeared LENA RIECKE, to me known to be the person described in and who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

WITNESS my hand and seal on this the day and year first above written.

/s C.E.Coombs Notary Public
San Diego County, California

My commission expires:
Sept. 17, 1952.

STATE OF New Mexico)
) ss
COUNTY OF San Juan)

On this 24 day of March, 1952, before me personally appeared AL GREER and FAY GREER, his wife, JOHN A. GRAVES and JANE GRAVES, his wife, H. N. LARUE and RUTH LARUE, his wife, ESC CHARLES RIECKE ~~and LENA RIECKE, his wife~~, and W. P. GREER and NELL GREER, his wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

Witness my hand and seal the day and year in this certificate first above written.

/s Esther S. Crane
Notary Public

My commission expires:
Oct. 18, 1954

STATE OF New York)
) ss
COUNTY OF New York)

On this 31st day of March, 1952, before me personally appeared Thomas Bardon & Norman E.LaMond, to me personally known, who being by me duly sworn, did say that ~~he is~~ they are President & Secretary, respectively of SHATTUCK-DENN MINING CORPORATION, a corporation organized under the laws of the State of Delaware, and that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its board of directors, and said Thomas Bardon &Norman E.LaMond acknowledged said instrument to be the free act and deed of said corporation.

Witness my hand and seal the day and year in this certificate first above written.

/s Irene Saffery
Notary Public

My commission expires:
March 30, 1954

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MINING LEASE

THIS INDENTURE, made and entered into this 14th day of April, 1951, by and between HENRY ANDREWS and PANSY ANDREWS, his wife, LEE GARCIA and MARY GARCIA, his wife, and DUMAS HARTT and EUFILIA HARTT, his wife, hereinafter called "Lessors", and A.A. GREER, hereinafter called "Lessee".

WITNESSETH:

1. That in consideration of the sum of Three Thousand Dollars ($3,000.00) advance royalty paid by the lessee to the lessors, the receipt whereof is hereby acknowledged, and in further consideration of the royalties, covenants and agreements hereinafter set forth the lessors do hereby grant, demise and let unto the lessee all of the following described mine and mining property situate in Mt. Taylor Mining District (Haystack Mining District), County of McKinley, State of New Mexico, to-wit:

GARCIA NO. 1: This claim is located in the Southeast Quarter of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West. Starting at the center of claim and running three hundred (300) feet to monument, thence running West seven hundred fifty (750) feet, thence North six hundred (600) feet, thence East fifteen hundred (1500) feet, thence South six hundred (600) feet, thence West to the point of beginning.

GARCIA NO. 2: This claim is located in the Southwest Quarter of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West. Starting at the Monument containing this notice and extending three hundred (300) feet North, thence East seven hundred fifty (750) feet, thence six hundred (600) feet South, thence West fifteen hundred (1500) feet, thence six hundred (600) feet North, thence seven hundred fifty (750) feet East to starting point. This claim lays near top of highest point of high rough ridge.

GARCIA NO. 3: Starting at monument containing this notice and running North three hundred (300) feet to touch Garcia Claim No. 1, thence seven hundred fifty (750) feet East along said claim, thence South six hundred (600) feet, thence fifteen hundred (1500) feet West, thence six hundred (600)feet North to touch Garcia Claim No. 2, thence East to point of beginning. This claim is in the Southeast Quarter of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, approximately seventeen hundred (1700) feet from the South line of said Section twenty-four (24).

GARCIA NO. 4: This claim is in the Northeast Quarter of the Southeast Quarter (NE¼SE¼) of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, starting at the monument running East to

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Section line of Section Twenty-four (24), thence North seven hundred fifty (750) feet, thence West six hundred (600) feet, thence South fifteen hundred feet (1500) thence East six hundred (600) feet to Section line, thence North seven hundred fifty (750) feet to point of beginning.

GARCIA NO. 5: This claim joins Garcia No. 2 West of the center of the North line of said No. 2 claim and extends fifteen hundred (1500) feet in a northerly direction then six hundred (600) feet westerly, then fifteen hundred (1500) feet southerly to join No. 2 claim, then East six hundred (600) feet to point of beginning,

together with appurtenances.

2. To have and to hold unto the lessee for one year from the date of this agreement and from year to year thereafter so long as the sum of Three Thousand Dollars ($3,000.00) is paid each year by the lessee to the lessors as annual advance royalty whether or not production of minerals and/or metals is had or obtained.

3. The lessee does covenant and agree with the said lessors to work the said leased premises in a manner necessary to good and economical mining so as to take out the greatest amount of ore possible with due regard to the safety, development and preservation of said premises as a workable mine.

4. The lessee agrees to allow the lessors and their duly authorized agents to enter upon and into said premises and any and all parts thereof at any reasonable time for the purpose of inspecting the same, but the lessors and their duly authorized agents shall not hinder or interrupt the work or operation of said premises by the lessee.

5. The lessee does covenant and agree with said lessors that he will keep, at all times, the drifts, shafts, tunnels and other passages and workings of said demised premises thoroughly drained and clear of loose rock and rubbish of all kinds unless prevented by extraordinary mining casualty.

6. The lessee does covenant and agree with said lessors that he will carry Workmen's Compensation on all persons working on said demised premises if required by the laws of the State of New Mexico and/or by the laws, rules and regulations of the United States Government.

7. It is agreed by and between the parties hereto that the lessors shall receive, as royalty for the leasing of said demised premises, fifteen percent (15%) of the proceeds derived from the sale of any and all minerals and/or metals of every kind, type and nature assaying One Hundred Dollars ($100.00) or less and twenty-five percent (25%) of the proceeds derived from the sale of any and all minerals and/or metals of every kind, type and nature assaying One Hundred and 01/100 Dollars ($100.01) or more. It is specifically agreed by the parties hereto that the assay price

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of any minerals and/or metals sold under the terms of this agreement shall include any better-grade or discovery bonus, but shall not include any development bonus or freight allowance paid by the United States Government. It is further agreed by and between the parties that there shall first be deducted from any royalties due the lessors at the above rates of fifteen percent (15%) or twenty-five percent (25%) the sums paid as advance royalty hereunder before any further payment shall be made the lessors, which further payments shall be made at the time of sale to any smelter and/or market. It is also agreed by and between the parties hereto that the lessee shall notify the lessors, or either of them, of the smelter and/or market at which said minerals and/or metals are sold and shall also notify the smelter and/or market of the royalty which the lessors are to receive by this instrument, which royalty shall be paid direct to the lessors by said smelter and/or market.

8. The lessee covenants and agrees to deliver up to the said lessors the said premises with the appurtenances and all improvements in good order and condition, with all shafts and tunnels and other passages thoroughly clear of rubbish and drained, and the mine, or mines, in all points ready for immediate continued working upon the termination of this lease.

9. It is agreed by and between the parties hereto that upon the violation by the lessee of any covenant contained herein the lessors may declare a forfeiture of all rights of the lessee herein, and all rights of the lessee herein and in and to said premises shall cease; PROVIDED, however, that no default shall be declared or become effective until the lessors shall give written notice to the lessee through the post office at Aztec, San Juan Co., New Mexico, setting out the nature of such default, and the lessee shall have thirty (30) days thereafter to cure such default, and if the lessee fail to cure the default existing within that time then this lease shall terminate, and the lease and premises with the appurtenances shall become forfeited to the lessors, and the lessee shall surrender the possession of the premises to the lessors without further process of law.

10. It is agreed by and between the parties that upon notice of a default on the part of the lessee, which notice shall be given as provided in paragraph nine (9) above, if the parties cannot agree as to the existence of a default or cannot agree as to whether or not such default has been properly cured, then they shall select a third person, agreeable to each of the parties hereto, as arbiter to determine the facts in dispute, and the parties hereto agree to be bound by the decision of the arbiter.

11. The lessee covenants and agrees that the lessors shall be notified in writing of any assignment of his rights hereunder.

12. The lessee covenants and agrees that he will, within the time and in the manner required by the laws of the United States of America and the laws of the State of New Mexico, do all development work and annual assessment work required by any of said laws and furnish proof thereof to the lessors and make proof of such mining, development work, and annual assessment work, at the time and in the manner required by said laws.

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13. The lessee covenants and agrees with the lessors that he will at all times strictly comply with the pertinent statutes, rules and regulations of the State of New Mexico and of the United States of America with respect to his mining operations that he will make and keep accurate maps of all his workings in the demised premises and that the lessors shall have access thereto and the right to make copies thereof at all reasonable times.

14. The parties hereto agree that the lessee shall pay all severance taxes and other taxes levied against the mine operations of the lessee as they pertain to his interest therein and that the lessors shall pay all severance taxes and other taxes levied against said mining operations as they pertain to their interest therein, and all such taxes shall be paid promptly and before the same shall become delinquent.

Each and every clause and covenant in this indenture shall extend to and bind the heirs, executors, administrators, personal representatives and assigns of the parties hereto.

IN WITNESS WHEREOF the said parties have hereunto set their hands and seals as of the date first above written.

s/ Henry Andrews
s/ Pansy Andrews
s/ Lee Garcia
s/ Mary Garcia
s/ Dumas Hartt
s/ Eufelia Hartt
Lessors

s/ A. A. Greer
Lessee

STATE OF NEW MEXICO
COUNTY OF VALENCIA ss

On this 14th day of April, 1951, before me personally appeared Henry Andrews and Pansy Andrews, his wife, Lee Garcia and Mary Garcia, his wife, and Dumas Hartt and Eufelia Hartt, his wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

Witness my hand and seal the day and year in this certificate first above written.

s/ Cyrus M. Rouse
Notary Public

(SEAL)
My commission expires: May 14th, 1953.

STATE OF NEW MEXICO
COUNTY OF SAN JUAN ss

On this 16th day of April, 1951, before me personally appeared A. A. Greer to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

s/ Esther S. Crane
Notary Public

(SEAL)
My commission expires: October 18, 1954.

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AMENDMENT TO MINING LEASE

THIS INDENTURE, made and entered into this 15th day of November, 1951, by and between HENRY ANDREWS and PANSY ANDREWS, his wife, LEE GARCIA and MARY GARCIA, his wife, and DUMAS HARTT and EUFILIA HARTT, his wife, as "Lessors" and the BLUE PEAK MINING

COMPANY, a co-partnership, by J. A. Graves, Charles Riecke, Al Greer, H. N. LaRue and W. P. Greer, its partners, hereinafter referred to as "Lessee",

WITNESSETH:

WHEREAS, said Lessors and A. A. Greer, assignor of the Lessee above-named, entered into a mining lease on the 14th day of April, 1951, covering certain mining claims known as Garcia No. 1, 2, 3, 4 and 5, located in the Mt. Taylor (Haystack) Mining District, McKinley County, New Mexico,

WHEREAS, the parties hereto mutually agree to amendment of the aforesaid mining lease,

NOW, THEREFORE, it is mutually agreed as follows:

Paragraph 7 of said lease shall be superceded by the following paragraph:

"7. It is agreed by and between the parties hereto that the lessors shall receive, as royalty for the leasing of said demised premises fifteen percent (15%) of the proceeds derived from the sale of any and all minerals and/or metals of every kind, type and nature assaying One Hundred Dollars ($100.00) or less and twenty-five percent (25%) of the proceeds derived from the sale of any and all minerals and/or metals of every kind, type and nature assaying One Hundred and 01/100 Dollars ($100.01) or more. It is specifically agreed by the parties hereto that the assay price of any minerals and/or metals sold under the terms of this agreement shall include any premium or better grade bonus, discovery and production, or any other bonus, but shall not include any development allowance paid at the mill and/or smelter. Nevertheless, the lessors shall be entitled to receive fifteen percent (15%) of any bonus paid as development bonus by the Atomic Energy Commission of the United States Government. It is further agreed by and between the parties that there shall first be deducted from any royalties due the lessors at the above rates of fifteen percent (15%) or twenty-five percent (25%) and from any amounts due the lessors by reason of bonus payments made by the Atomic Energy Commission of the United States of America the sums paid as advance royalty hereunder before any further payment shall be made the lessors, which further payments shall be made at the time of sale to any smelter and/or market or at the time of receipt of any bonus in which the lessors are entitled to share as herein set out. It is also agreed by and between the parties hereto that the lessee shall notify the lessors, or either of them, of the smelter and/or market at which the said minerals and/or metals are sold, and the lessors shall be entitled to receive a copy of the mill, smelter and/or market settlement sheet given at the time of such sale. Royalty and/or bonus payments shall be made to the lessors by the lessee. Lessors agree to pay their pro rata share of the freight."

C.R.
Al B.
HnL
W.P.G.
J.A.G.
H.E.A.
P.M.A.
L.B.G.
M.G.
D.H.
E.H.

In all other provisions and agreements therein contained

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the said lease entered into on the 14th day of April 1951, by the lessors herein named and by A. A. Greer, assignor of the lessee herein named, is hereby ratified and confirmed.

IN WITNESS WHEREOF the said parties have hereunto set their hands and seals as of the date first above written.

s/	Henry E. Andrews	s/	J. A. Graves
s/	Pansy M. Andrews	s/	Chas. Riecke
s/	Lee B. Garcia	s/	Al Greer
s/	Mary Garcia	s/	H. N. LaRue
s/	Dumas Hartt	s/	W. P. Greer
s/	Eufelia Hartt		

LESSORS

Co-owners of the BLUE PEAK MINING CO. LESSEE

STATE OF NEW MEXICO
COUNTY OF SAN JUAN ss

On this 24th day of November, 1951, before me personally appeared J. A. GRAVES, CHAS. RIECKE, AL GREER and H. N. LARUE to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

Witness my hand and seal the day and year in this certificate first above written.

s/ Esther S. Crane
Notary Public

(SEAL)
My commission expires:
October 18, 1954

STATE OF NEW MEXICO
COUNTY OF McKINLEY ss

On this 7th day of December, 1951, before me personally appeared W. P. GREER to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

Witness my hand and seal the day and year in this certificate first above written.

s/ C. M. Lezzer
Notary Public

(SEAL)
My commission expires: 7/22/55

STATE OF NEW MEXICO
COUNTY OF VALENCIA ss

On this 21 day of December, 1951, before me personally appeared Henry Andrews and Pansy Andrews, Lee Garcia and Mary Garcia, Dumas Hartt and Eufilia Hartt, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

Witness my hand and seal the day and year in this certificate first above written.

s/ Joseph A. Fidel
Notary Public

(SEAL)
My commission expires:
May 22, 1953.

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MINING LEASE

THIS INDENTURE, made and entered into this 6th day of February, 1952, by and between PETE MINOLETTI and MARGIE MINOLETTI, husband and wife, hereinafter called "Lessors", and JOHN A. GRAVES, hereinafter called "Lessee",

WITNESSETH:

1. That in consideration of the sum of One Thousand Dollars ($1,000.00) advance royalty paid by the lessee to the lessors, the receipt whereof is hereby acknowledged, and in further consideration of the royalties, covenants and agreements hereinafter set forth the lessors do hereby grant, demise and let unto the lessee all of the following described mine and mining property situate in Haystack Mining District, County of McKinley, State of New Mexico, to-wit:

That certain mining claim known as South Peak No. 1 and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point 1500 feet South from the Northwest Corner of said Section Twenty-four (24) and running thence Easterly parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet to the Northwest corner of said Section Twenty-four (24); thence running South along the West line of Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950 and recorded December 27, 1950 in Book 10 at Page 287 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 2 and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 600 feet East from the Northwest corner of said Section Twenty-four (24) and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950 and recorded December 27, 1950 in Book 10 at Page 286 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

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That certain mining claim known as South Peak No. 3 and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 1200 feet East of the Northwest corner of said Section Twenty-four (24) and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section twenty-four (24) for a distance of 600 feet; thence running South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950, and recorded December 27, 1950 in Book 10 at Page 286 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 4 and covering the following described land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 1800 feet East from the Northwest corner of said Section Twenty-four (24) and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950 and recorded December 27, 1950 in Book 10 at Page 285 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico.

That certain mining claim known as South Peak No. 5, and covering the following land lying and being in Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M.: Beginning at a point which is 1500 feet South and 2400 feet East from the Northwest corner of said Section Twenty-four (24) and running thence East parallel with the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running North parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet; thence running West along the North line of said Section Twenty-four (24) for a distance of 600 feet; thence running South parallel with the West line of said Section Twenty-four (24) for a distance of 1500 feet to the point of beginning; said mining claim being dated December 23, 1950 and recorded December 27, 1950 in Book 10 at Page 285 of the records in the office of the Clerk and Recorder of McKinley County, New Mexico;

together with appurtenances.

2. To have and to hold unto the lessee for one year from the date of this agreement and from year to year thereafter so long as the sum of One Thousand Dollars ($1000.00) is paid on or before the 1st day of April each year by the lessee to the lessors as annual advance royalty whether or not production of minerals and/or metals is had or obtained.

3. The lessee does covenant and agree with the said lessors to work the said leased premises in a manner necessary to good and economical mining so as to take out the greatest amount of ore possible with due regard to the safety, development and preservation of said premises as a workable mine.

4. The lessee agrees to allow the lessors and their duly authorized agents to enter upon and into said premises and any and all parts thereof at any reasonable time for the purpose of inspecting the same, but the lessors and their duly authorized agents shall not hinder or interrupt the work or operation of said premises by the lessee.

5. The lessee does covenant and agree with said lessors that he will keep, at all times, the drifts, shafts, tunnels and other passages and workings of said demised premises thoroughly drained and clear of loose rock and rubbish of all kinds unless prevented by extraordinary mining casualty.

6. The lessee does covenant and agree with said lessors that he will carry Workmen's Compensation on all persons working on said demised premises if required by the laws of the State of New Mexico and/or by the laws, rules and regulations of the United States Government.

7. It is agreed by and between the parties hereto that the lessors shall receive, as royalty for the leasing of said demised premises, fifteen percent (15%) of the proceeds derived from the sale of any and all minerals and/or metals of every kind, type and nature assaying One Hundred Dollars ($100.00) or less and twenty-five percent (25%) of the proceeds derived from the sale of any and all minerals and/or metals of every kind, type and nature assaying One Hundred and 01/100 Dollars ($100.01) or more. It is specifically agreed by the parties hereto that the assay price of any minerals and/or metals sold under the terms of this agreement shall include any premium or better grade bonus discovery and production, or any other bonus, but shall not include any development allowance paid at the mill and/or smelter, Nevertheless, the lessors shall be entitled to receive fifty percent (50%) of any bonus paid as development bonus by the Atomic Energy Commission of the United States Government. The above fifteen percent (15%) or twenty-five percent (25%) shall be of the proceeds after and less freight after haulage allowance. It is further agreed by and between the parties that there shall first be deducted from any royalties due the lessors at the above rates of fifteen percent (15%) or twenty-five percent (25%) and from any amounts due the lessors by reason of bonus payments made by the Atomic Energy Commission of the United States of America the sums paid as advance royalty hereunder before any further payment shall be made the lessors, which further payments shall be made at the time of sale to any smelter and/or market or at the time of receipt of any bonus in which the lessors are entitled to share as herein set out. It is also agreed by and between the parties hereto that the lessee shall notify the lessors, or either of them, of the smelter and/or market at which the said minerals and/or metals are

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sold, and the lessors shall be entitled to receive a copy of the mill, smelter and/or market settlement sheet given at the time of such sale. Royalty and/or bonus payments shall be made to the lessors by the lessee.

8. The lessee covenants and agrees to deliver up to the said lessors the said premises with the appurtenances and all improvements in good order and condition, with all shafts and tunnels and other passages thoroughly clear of rubbish and drained, and the mine, or mines, in all points ready for immediate continued working upon the termination of this lease.

9. It is agreed by and between the parties hereto that upon the violation by the lessee of any covenant contained herein, the lessors may declare a forfeiture of all rights of the lessee herein and in and to said premises shall cease; PROVIDED, however, that no default shall be declared or become effective until the lessors shall give written notice to the lessee through the post office at Aztec, San Juan Co., New Mexico, setting out the nature of such default, and the lessee shall have thirty (30) days thereafter to cure such default, and if the lessee fail to cure the default existing within that time then this lease shall terminate, and the lease and premises with the appurtenances shall become forfeited to the lessors, and the lessee shall surrender the possession of the premises to the lessors without further process of law.

10. It is agreed by and between the parties that upon notice of a default on the part of the lessee, which notice shall be given as provided in paragraph nine (9) above, if the parties cannot agree as to the existence of a default or cannot agree as to whether or not such default has been properly cured, then they shall select a third person, agreeable to each of the parties hereto, as arbiter to determine the facts in dispute, and the parties hereto agree to be bound by the decision of the arbiter.

11. The lessee covenants and agrees that the lessors shall be notified in writing of any assignment of his rights hereunder.

12. The lessee covenants and agrees that he will, within the time and in the manner required by the laws of the United States of America and the laws of the State of New Mexico, so all development work and annual assessment work required by any of said laws and furnish proof thereof to the lessors and make proof of such mining, development work, and annual assessment work, at the time and in the manner required by said laws.

13. The lessee covenants and agrees to build and/or extend a road to the North line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M. on mineralized strata, such road work to be commenced by May 1, 1952. The lessee further covenants and agrees that if ore of commercial value is encountered in the construction of said road, he will make every reasonable effort to commence and continue shipment of ore and obtain the best price therefor with due consideration to the location of the purchasing plant.

14. In the event commercial ore is not encountered and

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production and shipment of ore is not made hereunder, the lessee agrees to do development work on the claims, or any one of the claims, granted hereunder, in an amount not less than One Thousand Dollars ($1,000.00) each year, which development work shall be in addition to any annual assessment work agreed to be done hereunder by the lessee.

15. The lessee covenants and agrees with the lessors that he will at all times strictly comply with the pertinent statutes, rules and regulations of the State of New Mexico and of the United States of America with respect to his mining operations, that he will make and keep accurate maps of all his workings in the demised premises and that the lessors shall have access thereto and the right to make copies thereof at all reasonable times.

16. The parties hereto agree that the lessee shall pay all severance taxes and other taxes levied against the mine operations of the lessee of they pertain to his interest therein and that the lessors shall pay all severance taxes and other taxes levied against said mining operations as they pertain to their interest therein,and all such taxes shall be paid promptly and before the same shall become delinquent.

Each and every clause and covenant of this indenture shall extend to and bind the heirs, executors, administrators, personal representatives and assigns of the parties hereto.

IN WITNESS WHEREOF the said parties have hereunto set their hands and seals as of the date first above written.

s/ Margie Minoletti

s/ Pete Minoletti

Lessors

s/ John A. Graves

Lessee

STATE OF COLORADO
COUNTY OF LA PLATA ss

On this 13th day of February, 1952, before me personally appeared PETE MINOLETTI and MARGIE MINOLETTI, husband and wife, and JOHN A. GRAVES, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

Witness my hand and seal the day and year in this certificate first above written.

s/ Clifford H. Evensen
Notary Public within and for
LaPlata County, Colorado

(SEAL)

My commission expires: Aug. 2, 1952.

EXHIBIT A

BLUE PEAK CLAIM NO. 1: Beginning 1906 feet South of the Northeast corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South on the section line to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 298, in the office of the Probate Clerk and Ex-officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 2: Beginning 2156 feet South of the North line and 600 feet West of the East line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 298 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 3: Beginning 2281 feet South of the North line and 1200 feet West of the East line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 299 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 4: Beginning 2281 feet South of the North line and 1800 feet West of the East line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 299 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 5: Beginning 2281 feet South of the North line and 2400 feet West of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 600 feet West, 1500 feet North, 600 feet East, 1500 feet South to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 300 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

EXHIBIT A

BLUE PEAK CLAIM NO. 6: Beginning 1500 feet West of the Northeast corner on the North line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet South, 180 feet West, 1500 feet North, 180 feet East to the point of beginning; the location notice whereof being of record in Book 3, Page 300 of Mining Claim Records in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

BLUE PEAK CLAIM NO. 7: Beginning 1680 feet West of the Northeast corner on the North line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet South, 600 feet West, 1500 feet North, 600 feet East to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 301 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

EXHIBIT A

RED TOP CLAIM NO. 1: Beginning 1500 feet North of the Southwest corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South, 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 262 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 2: Beginning 1500 feet North of the South line and 600 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at Page 262 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 3: Beginning 1500 feet North of the South line and 1200 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South, 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 263 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 4: Beginning 1500 feet North of the South line and 1800 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South, 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 263 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 5: Beginning 1500 feet North of the South line and 2400 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South and 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 264 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

EXHIBIT A

RED TOP CLAIM NO. 6: Beginning 1500 feet North of the South line and 3000 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South, and 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 264 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 7: Beginning 1500 feet North of the South line and 3600 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet North, 600 feet East, 1500 feet South and 600 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 265 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 8: Beginning 1500 feet North of the South line and 4200 feet East of the West line of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, thence 1500 feet North, 480 feet East, 1500 feet South, 480 feet West to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 265 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 9: Beginning 3000 feet North along the section line from the Southwest corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet East, 600 feet North, 1500 feet West, 600 feet South on the West line of said Section 24 to the point of beginning; the location notice whereof being of record in Book 3 of Mining Claim Records at page 266 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

RED TOP CLAIM NO. 10: Beginning 3600 feet North along the Section line from the Southwest corner of Section Twenty-four (24), Township Thirteen (13) North, Range Ten (10) West, N.M.P.M., thence 1500 feet East, 180 feet North, 1500 feet West, 180 feet South to the point of beginning on the West line of Section 24; the location notice whereof being of record in Book 3 of Mining Claim Records at page 266 in the office of the Probate Clerk and Ex-Officio Recorder of McKinley County, New Mexico.

SHATTUCK DENN MINING CORPORATION

CONSOLIDATED BALANCE SHEET — DECEMBER 31, 1951

ASSETS

CURRENT ASSETS:			
Cash		$1,133,144.45	
U. S. Government securities, at par value (at market quotations $1,005,099.06)		1,000,000.00	
Accounts receivable		486,352.44	
Ores and fluorspar, at lower of cost or market		55,814.91	
Supplies, at cost		235,621.54	
Prepaid expenses		18,938.18	$2,929,871.52
INVESTMENTS:			
Vulcan Silver-Lead Corporation stock, at cost (at market quotations $200,821.38)		$ 95,563.28	
Other, at cost		58,501.00	154,064.28
PROPERTY, PLANT AND EQUIPMENT (see note A):			
Mines, mining claims and leaseholds	$ 960,144.84		
Less accumulated depletion	424,766.95	$ 535,377.89	
Buildings, machinery and equipment	$1,252,043.76		
Less accumulated depreciation	750,010.73	502,033.03	1,037,410.92
DEFERRED CHARGES:			
Exploration and development			168,107.65
			$4,289,454.37

LIABILITIES AND CAPITAL

CURRENT LIABILITIES:		
Accounts payable and miscellaneous accrued expenses	$ 115,650.44	
Wages accrued	58,451.84	
Federal and State income taxes accrued	583,327.68	
Other taxes accrued	40,143.02	$ 797,572.98
CAPITAL:		
Capital stock:		
Authorized—1,000,000 shares of $5.00 par value each Issued and outstanding—799,416 shares	$3,997,080.00	
Deficit (see note B)—per Statement of Consolidated Deficit	505,198.61	3,491,881.39
		$4,289,454.37

The Notes to Financial Statements on page 7 are an integral part of above statement.

SHATTUCK DENN MINING CORPORATION

STATEMENT OF CONSOLIDATED INCOME

YEAR ENDED DECEMBER 31, 1951

Income:		
Sales value of metals in concentrates and sales of fluorspar		$5,994,184.73
Less charges for smelting, refining and freight		1,692,508.07
Sales of concentrates and fluorspar		$4,301,676.66
Interest earned and dividends received		15,078.58
Miscellaneous earnings		13,286.26
		$4,330,041.50
Costs and expenses:		
Operating expenses, development, maintenance, repairs, general and administrative expenses, and taxes other than income taxes	$2,803,247.08	
Deduction for depreciation	112,497.46	
Exploration and examination of mines	66,497.45	
Deduction for depletion	10,035.36	2,992,277.35
		$1,337,764.15
Federal and State income taxes—estimated (no excess profits tax indicated)		493,000.00
CONSOLIDATED NET INCOME of the year 1951		$ 844,764.15

STATEMENT OF CONSOLIDATED DEFICIT

YEAR ENDED DECEMBER 31, 1951

Consolidated Deficit December 31, 1950		$ 750,400.76
Reduction of consolidated deficit:		
Consolidated Net Income of the year 1951	$ 844,764.15	
Less distributions to stockholders in the year 1951 ($.75 per share)	599,562.00	245,202.15
CONSOLIDATED DEFICIT December 31, 1951 (see note B), per Consolidated Balance Sheet		$ 505,198.61

The Notes to Financial Statements on page 7 are an integral part of above statements.

From studies made by the Company's engineers and by independent engineers, it has become apparent that a new shaft will be necessary for the mining of the ore on the deeper levels of the Iron King mine. When the present main shaft, known as No. 6 Shaft, was planned the size and depth of the ore body was not known, and this shaft will become inadequate within the next few years if the current rate of production is to be maintained or increased. Accordingly, preparations are now being made to sink a new shaft, to be known as No. 7 Shaft, at a location approximately 420 feet northerly of No. 6 Shaft. The new shaft is planned to reach an initial depth of 1,867 feet but it will be designed and equipped to serve the mine at much greater depths. It will be connected on several levels with No. 6 Shaft and as mining may be carried on at greater depths both shafts can be further deepened and connected.

The output of the Company's fluorspar subsidiary, Zuni Milling Company, with mine and mill located in New Mexico, showed a substantial increase over 1950. The main product of this operation is acid grade fluorspar which is used in the aluminum and chemical industries. The expansion of these industries has increased the demand and price of this grade of fluorspar, a condition which is likely to continue as long as the Government's defense program is maintained at its current level. In addition to treating the ore obtained from Zuni's own mines, the mill treats substantial quantities of ore purchased from other mines in New Mexico, Arizona and Mexico.

As was stated in last year's report the concentrating mill which the Company owns at Bisbee, Arizona, remains idle. Efforts have been made to develop sources of raw material for that mill but to date such efforts have been unsuccessful. During 1951 the Company's office building and manager's residence were sold. Miscellaneous equipment and supplies remaining in Bisbee were either sold or charged off.

Exploration work at the Kay mine, situated in Arizona, was begun late in 1950 and continued through February 1952. In the latter part of 1951 The New Jersey Zinc Exploration Company, a subsidiary of The New Jersey Zinc Company, joined us in said work. The work was recently terminated because it failed to disclose sufficient ore of commercial quality.

Our 1950 report mentioned arrangements which we had made with the organizers of a Mexican corporation with holdings in the southern part of Baja California, Mexico. During 1951 exploratory work was done there in the vicinity of La Paz, but the results were unfavorable and the work was discontinued. The cost thereof, amounting to $59,814.94, has been charged off but we still retain an investment of $50,000 in the securities of the Mexican corporation which is attempting to develop some of the other resources of that area.

The Company has retained and now holds 55,399 shares of the Vulcan Silver-Lead Corporation, which it received from the 79 Lead-Copper Company when that Company sold virtually all of its assets to Callahan Zinc-Lead Company. The Vulcan mine is now being developed in accordance with the terms of an agreement between Vulcan Silver-Lead Company and American Smelting and Refining Company. On December 31, 1951 the market value of this Vulcan stock owned by Shattuck Denn Mining Corporation was approximately $200,821.38 compared with the $147,346.56 which it had invested in the 79 Lead-Copper Company. In 1951 Shattuck Denn Mining Corporation sold 37,500 shares of the stock of 79 Lead-Copper Company for $500 but still retains 17,899 shares or approximately 19% of the presently issued and outstanding stock of 79 Lead-Copper Company. All of the Shattuck Denn representatives serving as officers and directors of the 79 Company have resigned and the new 79 management intends, we are informed, to continue the corporate existence as an investment company. At the time of the resignation of the Shattuck Denn representatives, the value of the 79 Company's assets had been reduced to approximately $2700.

Early in 1951, the Abril mine, in Arizona, was leased and has since been operated by the lessee. A small sum has been received as royalties from the lessee who has, we are informed, obtained a Government exploration loan, the proceeds of which will be used to explore the mine.

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Your Company is actively continuing its efforts to obtain new mining properties and during the past year it has investigated a number of such possibilities. Options have been secured on several locations which will be further studied and perhaps tested by diamond drilling or by other methods. Other properties are under negotiation. Experimental work, looking toward improved metallurgical processes and increased recoveries of metals from ore, is also being conducted and encouraging progress is being made in that direction.

For the Board of Directors,

THOMAS BARDON,
President.

SHATTUCK DENN MINING CORPORATION

120 BROADWAY
NEW YORK 5, N. Y.

To the Stockholders:

Net income of the Company and its wholly-owned subsidiaries in 1951 was $844,764.15 after all charges including depletion and estimated income taxes, compared with $627,658.30 in 1950.

Two distributions totalling $599,562.00 were paid to stockholders during 1951, as follows:

June 15, 1951 — 30¢ per share
December 15, 1951 — 45¢ per share

Distributions to stockholders in 1950 were at the rate of 50¢ per share.

The Company's financial statements certified by Messrs. Pogson, Peloubet & Co., independent Certified Public Accountants, are submitted herewith. To supplement such statements we wish to present the following figures:

INCOME from —	
Lead, zinc, copper, gold, silver and fluorspar	$5,994,184.73
Rents, royalties and fees	9,428.77
Dividends and interest	15,078.58
Miscellaneous	21,879.47
	$6,040,571.55
COSTS of —	
Smelting, refining and transportation of ores and concentrates	$1,775,966.03
Purchased ores	275,188.82
Supplies	661,893.53
Power, water, etc.	145,770.92
Wages	1,253,160.62
Salaries—staff and clerical	35,329.57
Salaries—President, Vice President and Secretary-Treasurer	35,075.00
Miscellaneous taxes and insurance	191,761.91
Exploration and examination of mines	66,497.45
Legal and auditing	15,065.63
Rents and royalties	84,268.60
Miscellaneous	65,986.42
	$4,605,964.50
Less increase in inventories of ores and concentrates	25,689.92
	$4,580,274.58
Federal and State income taxes—estimated	493,000.00
	$5,073,274.58
Net Income for year, before depletion and depreciation	$ 967,296.97

The foregoing tabulation does not include 1951 expenditures for construction and equipment, amounting to $155,722.22; acquisition and development of new mining properties $133,497.26, and $200,000.00 for the purchase of additional United States Government securities. At the end of the year such Government securities had a par value of $1,000,000, their market value was $1,005,099.06 and all of them mature within one year.

In 1951 there were 242,775 tons of ore treated in the Company's plants from ores produced at its mines, purchased for processing and processed for others. Production of metals and minerals was 5,929,653 pounds of lead, 15,725,624 pounds of zinc, 202,586 pounds of copper, 19,815 ounces of gold, 605,528 ounces of silver and 16,600 tons of fluorspar.

The Iron King mine, situated at Humboldt, Arizona, handled 203,722 tons of ore during 1951, an increase of 202 tons over 1950. Metal prices in 1951 were somewhat higher than those of 1950. The average price of zinc was 18¢ and the average price of lead was 17½¢, compared with 13.866¢ and 13.296¢, respectively, in 1950. Gold and silver prices remained unchanged. The ore extracted came principally from the tenth and eleventh levels of the mine. The present main shaft was sunk 127 feet during the year and has now reached a depth of 1,739 feet. The twelfth and thirteenth levels are being prepared for the extraction of ore and stations have been cut on the fourteenth and fifteenth levels. The average grade of ore mined during the year showed no significant change from the grade of ore in the preceding year.

SHATTUCK DENN MINING CORPORATION

NOTES TO FINANCIAL STATEMENTS

NOTE A—BASIS OF VALUATION OF MINING PROPERTIES AND PLANT

Mines, mining claims and leaseholds and plant and equipment are carried in the Balance Sheet at cost to the Company or its predecessors. As the cost of the Iron King mine, the principal producing property of the Company, is completely offset by accumulated depletion, the net value of this mine shown in the Balance Sheet is zero.

No representation is made that the amounts included in the Balance Sheet for mining properties and buildings, machinery and equipment, either before or after deducting depletion or depreciation represent current or realizable values.

NOTE B—DEFICIT

The balance of deficit at December 31, 1951 includes the following:

Paid-in surplus October 31, 1925*, as adjusted		$4,318,110.71
Deficit at December 31, 1936 charged paid-in surplus in accordance with resolution of Board of Directors:		
Net Income through 1936, before deducting depletion	$ 54,214.72	
Depletion through 1936	1,126,259.99	1,072,045.27
Paid-in surplus December 31, 1936 (less deficit at that date)		$3,246,065.44
Net Income since 1936, before deducting depletion		5,272,634.59
		$8,518,700.03
Less:		
Depletion since 1936	$2,720,849.38	
Decreases resulting from sale of and from write-off of mining properties	3,686,449.51	
Distributions to stockholders since 1936	2,616,599.75	9,023,898.64
Deficit December 31, 1951, per Consolidated Balance Sheet		$ 505,198.61

*Date of merger of Shattuck Arizona Copper Company and Denn-Arizona Copper Company into Shattuck Denn Mining Corporation.

POGSON, PELOUBET & CO.
CERTIFIED PUBLIC ACCOUNTANTS

NEW YORK
MAURICE E. PELOUBET
LEWIS M. NORTON
SIDNEY W. PELOUBET
HOWARD L. GUYETT
CRAWFORD C. HALSEY
FRANK E. SMALL
EL PASO
PERCY W. POGSON
PERCY W. POGSON, JR.

CABLE ADDRESS "CERTIFIED" NEW YORK

AGENT
EUROPE-KEMP, CHATTERIS & CO.
LONDON

25 BROADWAY, NEW YORK 4, N. Y.

To the Board of Directors and Stockholders of
SHATTUCK DENN MINING CORPORATION:

We have examined the Consolidated Balance Sheet of Shattuck Denn Mining Corporation and its 100 per cent owned subsidiaries as of December 31, 1951 and the related Statements of Consolidated Income and Consolidated Deficit for the year ended that date. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying Consolidated Balance Sheet and Statements of Consolidated Income and Consolidated Deficit, together with the explanatory notes, present fairly the financial position of Shattuck Denn Mining Corporation and its consolidated subsidiaries at December 31, 1951, and the results of their operations for the year ended that date, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

POGSON, PELOUBET & CO.
Certified Public Accountants.

New York, March 13, 1952.

SHATTUCK DENN MINING CORPORATION

INCORPORATED UNDER THE LAWS OF DELAWARE, MAY 20, 1925

DIRECTORS

THOMAS BARDON.....NEW YORK, N. Y.
WARREN BICKNELL, JR.....CLEVELAND, O.
R. J. HIGGINS.....DULUTH, MINN.
AUSTIN JENNER.....CHICAGO, ILL.
NORMAN E. LA MOND.....NEW YORK, N. Y.
ANDREW OLIVER.....NEW YORK, N. Y.
S. S. SHATTUCK.....BISBEE, ARIZ.

OFFICERS AND STAFF

THOMAS BARDON.....*President*
S. S. SHATTUCK.....*Vice President*
R. J. HIGGINS.....*Assistant Vice President*
NORMAN E. LA MOND.....*Secretary and Treasurer*
R. H. COCHRAN, JR.....*Assistant Secretary*
H. F. MILLS.....*Manager, Iron King Branch*
G. A. WARNER.....*Manager, Zuni Milling Company*
T. W. NEWELL.....*Superintendent, Denn Branch*

TRANSFER AGENT

GUARANTY TRUST COMPANY OF NEW YORK

REGISTRAR

BANKERS TRUST COMPANY, NEW YORK

GENERAL OFFICE

120 BROADWAY, NEW YORK 5, N. Y.

MINE OFFICES

DENN BRANCH.....BISBEE, ARIZONA
IRON KING BRANCH.....HUMBOLDT, ARIZONA
ZUNI MILLING COMPANY.....ALBUQUERQUE, NEW MEXICO

PERTINENT FIGURES
1951

Production:

Zinc	15,725,624 pounds
Lead	5,929,653 pounds
Copper	202,586 pounds
Gold	19,815 ounces
Silver	605,528 ounces
Fluorspar	16,060 tons

Financial:

Earnings, before Income Taxes	$1,337,764.15
Federal and State Income Taxes	$ 493,000.00
Earnings, after Income Taxes	$ 844,764.15
Dividends — 75¢ per share	$ 599,562.00
Earnings retained in the business	$ 245,202.15
Working Capital	$2,132,298.54

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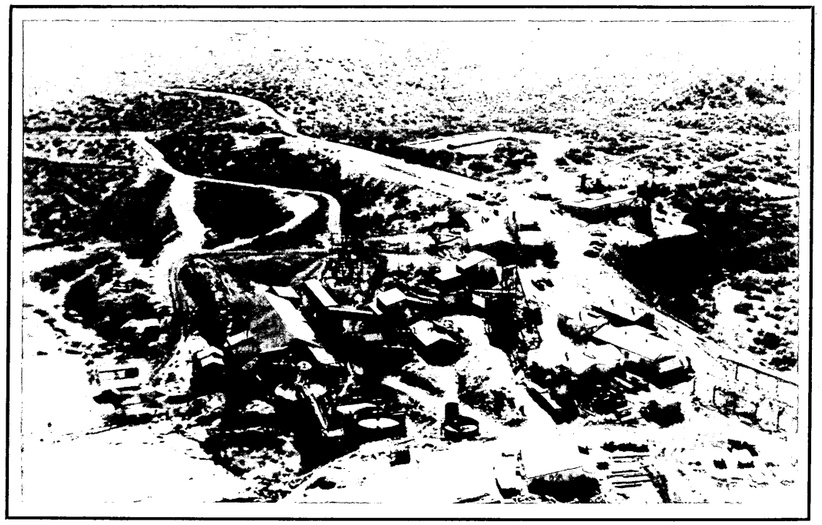
SHATTUCK DENN MINING CORPORATION



IRON KING MINE

ANNUAL REPORT FOR THE YEAR 1951

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

SHATTUCK DENN MINING CORPORATION

CONSOLIDATED BALANCE SHEET — DECEMBER 31, 1951

ASSETS

CURRENT ASSETS:			
Cash		$1,133,144.45	
U. S. Government securities, at par value (at market quotations $1,005,099.06)		1,000,000.00	
Accounts receivable		486,352.44	
Ores and fluorspar, at lower of cost or market		55,814.91	
Supplies, at cost		235,621.54	
Prepaid expenses		18,938.18	$2,929,871.52
INVESTMENTS:			
Vulcan Silver-Lead Corporation stock, at cost (at market quotations $200,821.38)		$ 95,563.28	
Other, at cost		58,501.00	154,064.28
PROPERTY, PLANT AND EQUIPMENT (see note A):			
Mines, mining claims and leaseholds	$ 960,144.84		
Less accumulated depletion	424,766.95	$ 535,377.89	
Buildings, machinery and equipment	$1,252,043.76		
Less accumulated depreciation	750,010.73	502,033.03	1,037,410.92
DEFERRED CHARGES:			
Exploration and development			168,107.65
			$4,289,454.37

LIABILITIES AND CAPITAL

CURRENT LIABILITIES:		
Accounts payable and miscellaneous accrued expenses	$ 115,650.44	
Wages accrued	58,451.84	
Federal and State income taxes accrued	583,327.68	
Other taxes accrued	40,143.02	$ 797,572.98
CAPITAL:		
Capital stock:		
Authorized—1,000,000 shares of $5.00 par value each Issued and outstanding—799,416 shares	$3,997,080.00	
Deficit (see note B)—per Statement of Consolidated Deficit	505,198.61	3,491,881.39
		$4,289,454.37

The Notes to Financial Statements on page 7 are an integral part of above statement.

SHATTUCK DENN MINING CORPORATION

STATEMENT OF CONSOLIDATED INCOME

YEAR ENDED DECEMBER 31, 1951

Income:		
Sales value of metals in concentrates and sales of fluorspar		$5,994,184.73
Less charges for smelting, refining and freight		1,692,508.07
Sales of concentrates and fluorspar		$4,301,676.66
Interest earned and dividends received		15,078.58
Miscellaneous earnings		13,286.26
		$4,330,041.50
Costs and expenses:		
Operating expenses, development, maintenance, repairs, general and administrative expenses, and taxes other than income taxes	$2,803,247.08	
Deduction for depreciation	112,497.46	
Exploration and examination of mines	66,497.45	
Deduction for depletion	10,035.36	2,992,277.35
		$1,337,764.15
Federal and State income taxes—estimated (no excess profits tax indicated)		493,000.00
CONSOLIDATED NET INCOME of the year 1951		$ 844,764.15

STATEMENT OF CONSOLIDATED DEFICIT

YEAR ENDED DECEMBER 31, 1951

Consolidated Deficit December 31, 1950		$ 750,400.76
Reduction of consolidated deficit:		
Consolidated Net Income of the year 1951	$ 844,764.15	
Less distributions to stockholders in the year 1951 ($.75 per share)	599,562.00	245,202.15
CONSOLIDATED DEFICIT December 31, 1951 (see note B), per Consolidated Balance Sheet		$ 505,198.61

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From studies made by the Company's engineers and by independent engineers, it has become apparent that a new shaft will be necessary for the mining of the ore on the deeper levels of the Iron King mine. When the present main shaft, known as No. 6 Shaft, was planned the size and depth of the ore body was not known, and this shaft will become inadequate within the next few years if the current rate of production is to be maintained or increased. Accordingly, preparations are now being made to sink a new shaft, to be known as No. 7 Shaft, at a location approximately 420 feet northerly of No. 6 Shaft. The new shaft is planned to reach an initial depth of 1,867 feet but it will be designed and equipped to serve the mine at much greater depths. It will be connected on several levels with No. 6 Shaft and as mining may be carried on at greater depths both shafts can be further deepened and connected.

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For the Board of Directors,

THOMAS BARDON,
President.

SHATTUCK DENN MINING CORPORATION

120 BROADWAY
NEW YORK 5, N. Y.

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SHATTUCK DENN MINING CORPORATION

NOTES TO FINANCIAL STATEMENTS

NOTE A—BASIS OF VALUATION OF MINING PROPERTIES AND PLANT

Mines, mining claims and leaseholds and plant and equipment are carried in the Balance Sheet at cost to the Company or its predecessors. As the cost of the Iron King mine, the principal producing property of the Company, is completely offset by accumulated depletion, the net value of this mine shown in the Balance Sheet is zero.

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The balance of deficit at December 31, 1951 includes the following:

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Depletion since 1936	$2,720,849.38	
Decreases resulting from sale of and from write-off of mining properties	3,686,449.51	
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Deficit December 31, 1951, per Consolidated Balance Sheet		$ 505,198.61

*Date of merger of Shattuck Arizona Copper Company and Denn-Arizona Copper Company into Shattuck Denn Mining Corporation.

POGSON, PELOUBET & CO.
CERTIFIED PUBLIC ACCOUNTANTS

NEW YORK
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LEWIS M. NORTON
SIDNEY W. PELOUBET
HOWARD L. GUYETT
CRAWFORD C. HALSEY
FRANK E. SMALL
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CABLE ADDRESS "CERTIFIED" NEW YORK

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LONDON

25 BROADWAY, NEW YORK 4, N. Y.

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In our opinion, the accompanying Consolidated Balance Sheet and Statements of Consolidated Income and Consolidated Deficit, together with the explanatory notes, present fairly the financial position of Shattuck Denn Mining Corporation and its consolidated subsidiaries at December 31, 1951, and the results of their operations for the year ended that date, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

POGSON, PELOUBET & CO.
Certified Public Accountants.

New York, March 13, 1952.

SHATTUCK DENN MINING CORPORATION

INCORPORATED UNDER THE LAWS OF DELAWARE, MAY 20, 1925

DIRECTORS

THOMAS BARDON.....NEW YORK, N. Y.
WARREN BICKNELL, JR.....CLEVELAND, O.
R. J. HIGGINS.....DULUTH, MINN.
AUSTIN JENNER.....CHICAGO, ILL.
NORMAN E. LA MOND.....NEW YORK, N. Y.
ANDREW OLIVER.....NEW YORK, N. Y.
S. S. SHATTUCK.....BISBEE, ARIZ.

OFFICERS AND STAFF

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R. J. HIGGINS.....*Assistant Vice President*
NORMAN E. LA MOND.....*Secretary and Treasurer*
R. H. COCHRAN, JR.....*Assistant Secretary*
H. F. MILLS.....*Manager, Iron King Branch*
G. A. WARNER.....*Manager, Zuni Milling Company*
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PERTINENT FIGURES
1951

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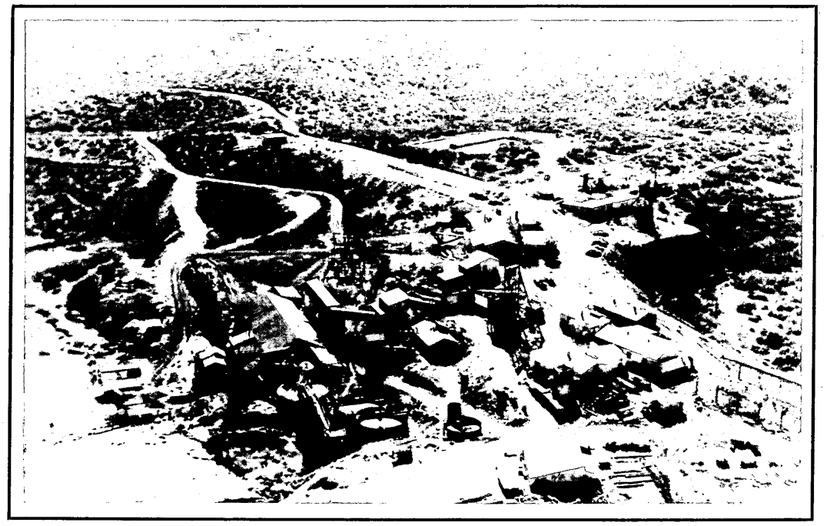
NEW YORK 5, N. Y.

SHATTUCK DENN MINING CORPORATION



IRON KING MINE

ANNUAL REPORT FOR THE YEAR 1951

E. 157 Howard St.
Spokane 5, Wash.

AIR MAIL 6¢ AIR MAIL 6¢ AIR MAIL 6¢ AIR MAIL 6¢

SPOKANE APR 14 730PM 1952 WASH.

SPOKANE APR 14 730PM 1952 WASH.

VIA AIR MAIL

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

VIA AIR MAIL

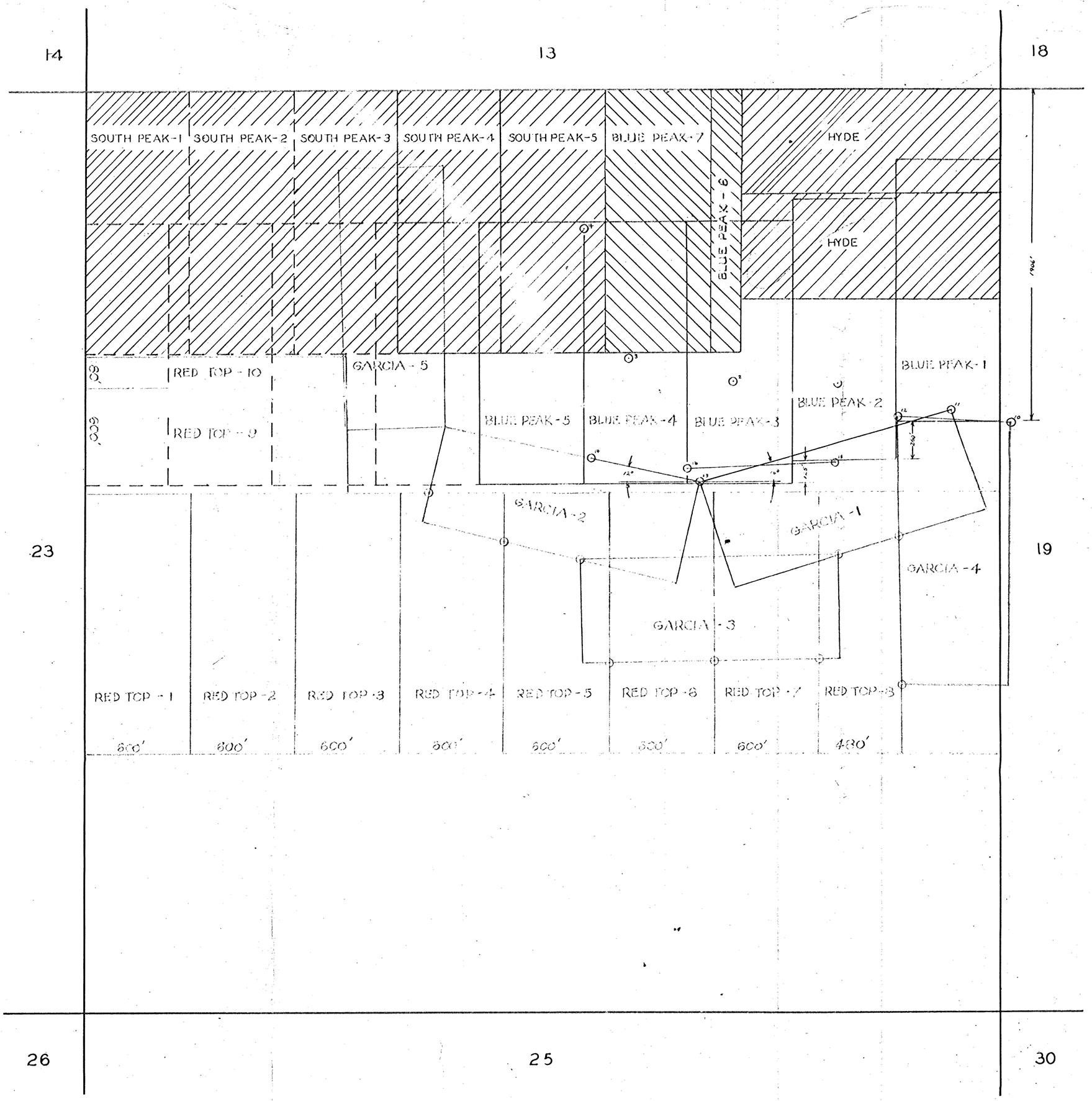
DMCA2765

MAP OF CLAIMS

Accompanying DMEA Loan Application of:

Shattuck Denn Mining Corporation
120 Broadway, New York 5, N.Y.

for exploration of uranium project near
Grants, New Mexico



LEDGEND

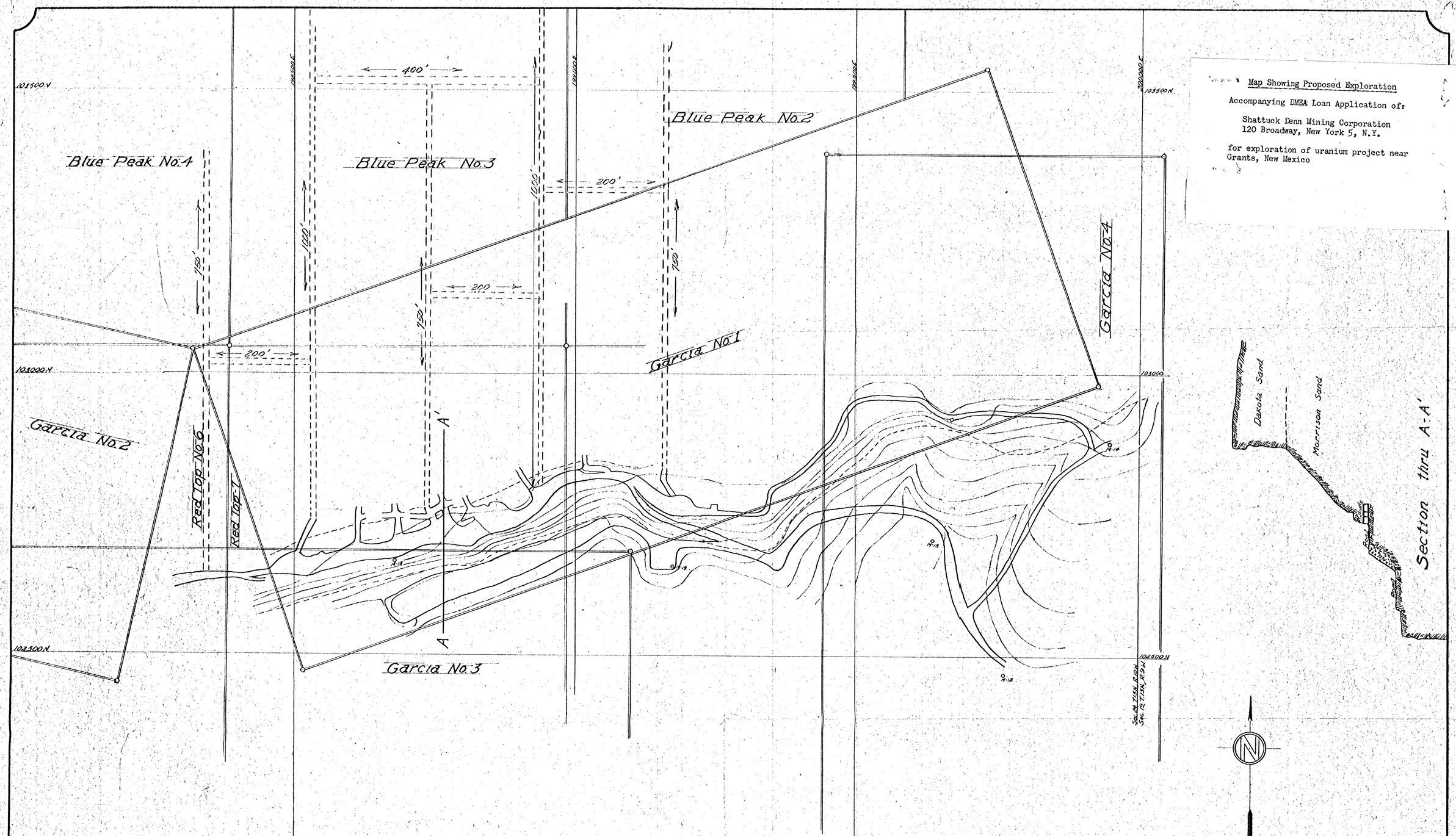
- ① CENTER MON. ZUNI-4
- ② CENTER MON. ZUNI-5
- ③ CENTER MON. ZUNI-6
- ④ CENTER MON. ZUNI-8
- ⑩ NE MON. GARCIA-4
- ⑪ NE MON. GARCIA-1
- ⑫ NW MON. GARCIA-4
- ⑬ NW MON. GARCIA-1
  NE MON. GARCIA-2
- ⑭ NCENTER MON. GARCIA 2
- ⑮ SW MON. JOHNSON-2
  SE MON. JOHNSON-1
- ⑯ SW MON. JOHNSON-1

SECTION 24 T 13 N - R 10 W
MC KINLEY COUNTY - N.M.

SURVEYORS - HERLIHY & CARPENTER
DATE - APRIL 1951

0 400' 800' 1200' 1600'
SCALE: 1" = 400'

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

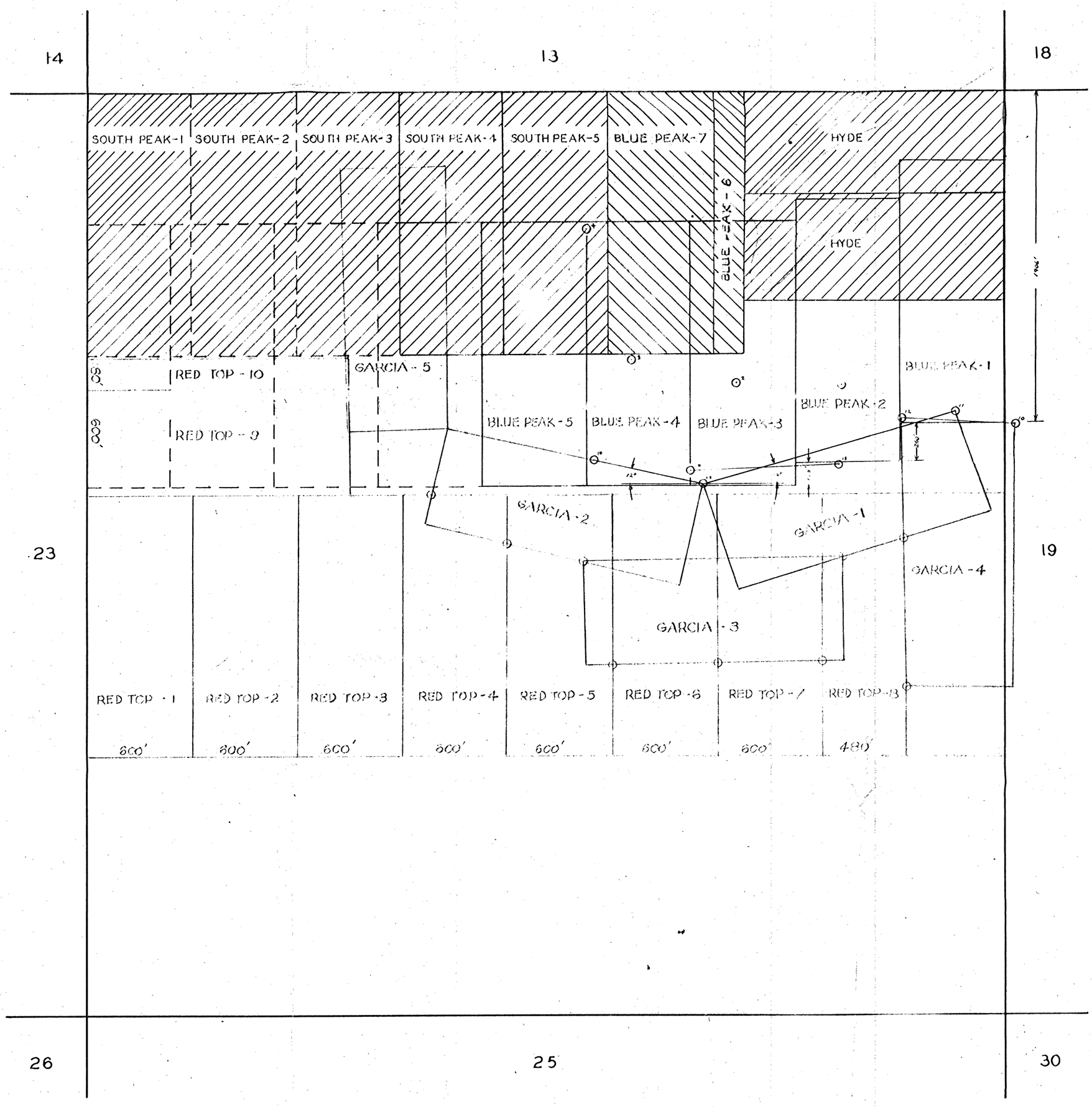

Map Showing Proposed Exploration
Accompanying DMEA Loan Application of:
Shattuck Denn Mining Corporation
120 Broadway, New York 5, N.Y.
for exploration of uranium project near
Grants, New Mexico
Blue Peak No.4
Blue Peak No.3
Blue Peak No.2
Garcia No.4
Garcia No.1
Garcia No.2
Garcia No.3
Red Top No.6
Red Top-1
400'
200'
1000'
1200'
750'
120'
101500.N
103000.N
102500.N
103500.N
A
A'
Dakota Sand
Morrison Sand
Section thru A-A'
N
SHATTUCK-DENN MINING CORP.
URANIUM BRANCH
Sec.24, T.13N, R10W - McKinley County - New Mexico
Scale - 1" = 100'
Contour Interval - 10'
Proposed Exploration = = = = = =
SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

MAP OF CLAIMS

Accompanying DMEA Loan Application of:

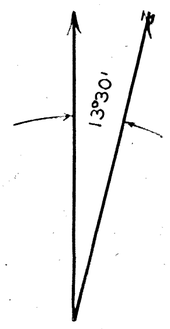
Shattuck Denn Mining Corporation
120 Broadway, New York 5, N.Y.

for exploration of uranium project near Grants, New Mexico



LEDGEND

- CENTER MON. ZUNI-4
- CENTER MON. ZUNI-5
- CENTER MON. ZUNI-6
- CENTER MON. ZUNI-8
- NE MON. GARCIA-4
- NE MON. GARCIA-1
- NW MON. GARCIA-4
- NW MON. GARCIA-1
  NE MON. GARCIA-2
- N CENTER MON. GARCIA 2
- SW MON. JOHNSON-2
  SE MON. JOHNSON-1
- SW MON. JOHNSON-1



SECTION 24 T13N-R10W
MC KINLEY COUNTY-N.M.

SURVEYORS - HERLIHY & CARPENTER
DATE - APRIL 1951

0 400' 800' 1200' 1600'
SCALE 1" = 400'

SHATTUCK DENN MINING CORPORATION
120 BROADWAY
NEW YORK 5, N. Y.

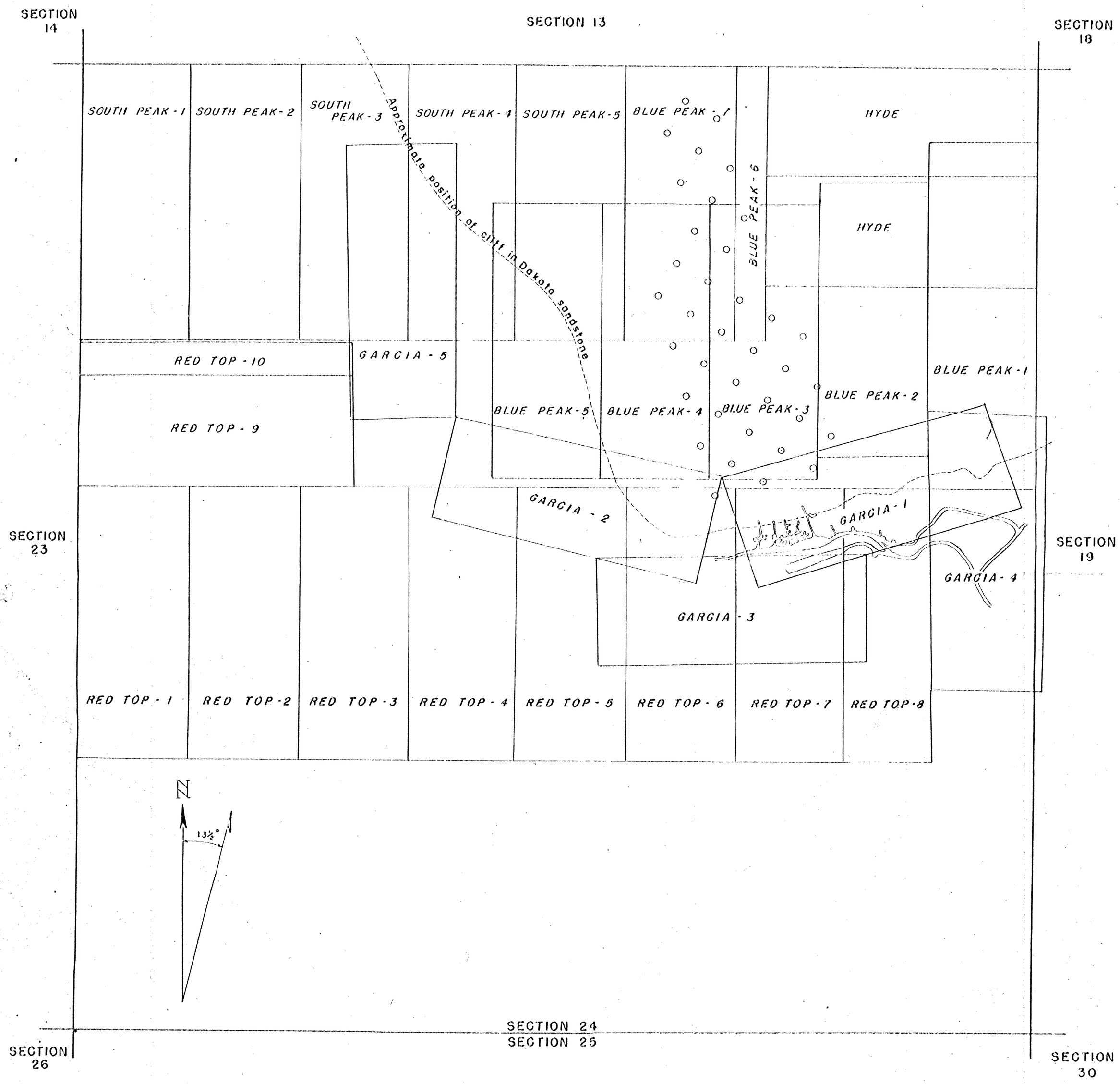


FIGURE 1. - CLAIM MAP OF SECTION 24, T. 13 N., R. 10 W., SHOWING TENTATIVE LOCATION OF PROPOSED DRILLING. DMEA 2765

0 400 800 1200 1600

SCALE 1" = 400'

O PROPOSED DRILL HOLES

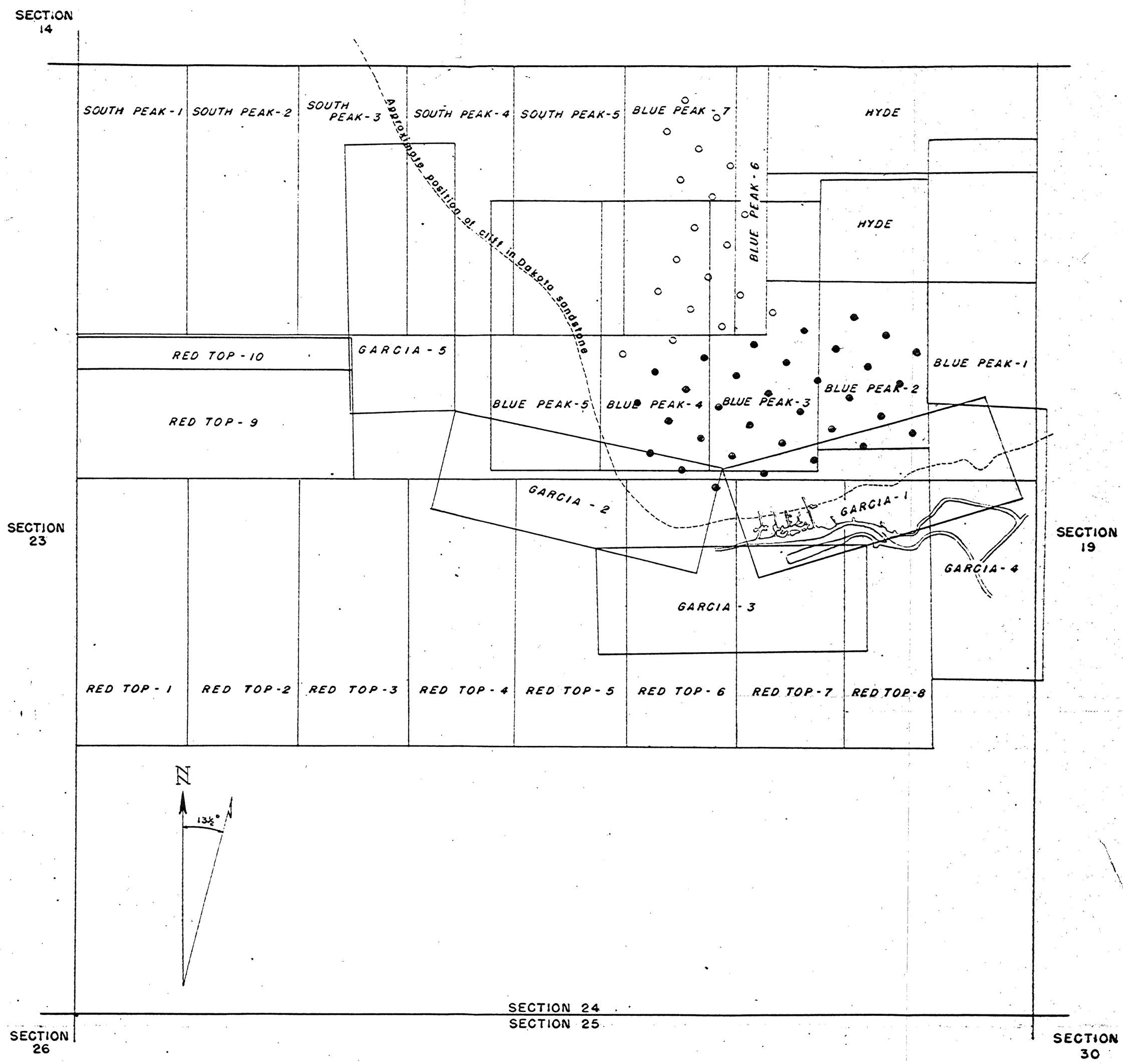
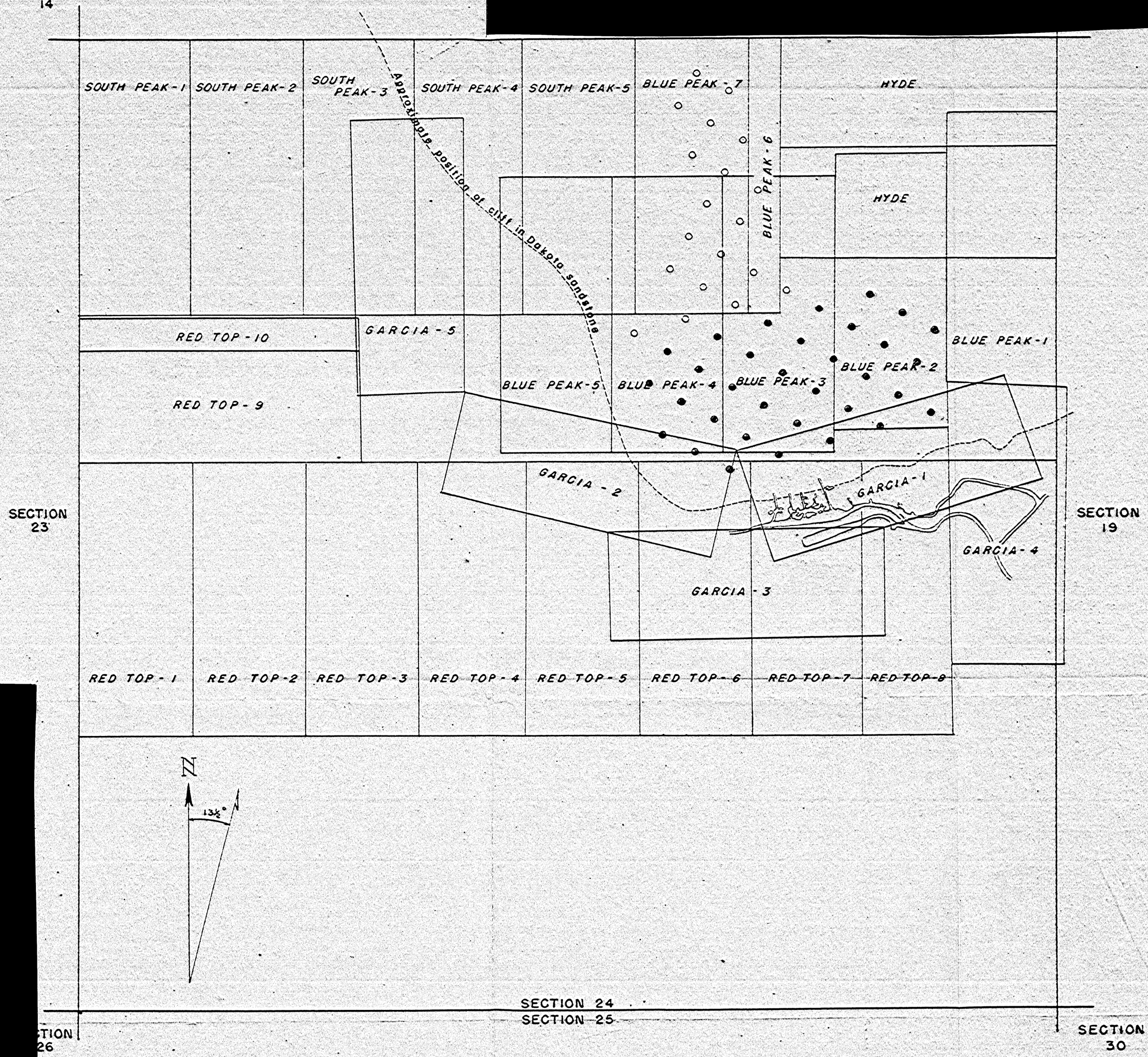


FIGURE 1. - CLAIM MAP OF SECTION 24, T. 13 N., R. 10 W., SHOWING TENTATIVE LOCATION OF PROPOSED DRILLING. DMEA 2765

0 400 800 1200 1600

SCALE 1" = 400'

● PROPOSED DRILL HOLES



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SCALE 1" = 400'

● PROPOSED DRILL HOLES

MAP OF CLAIMS

Accompanying DMEA Loan Application of:

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120 Broadway, New York 5, N.Y.

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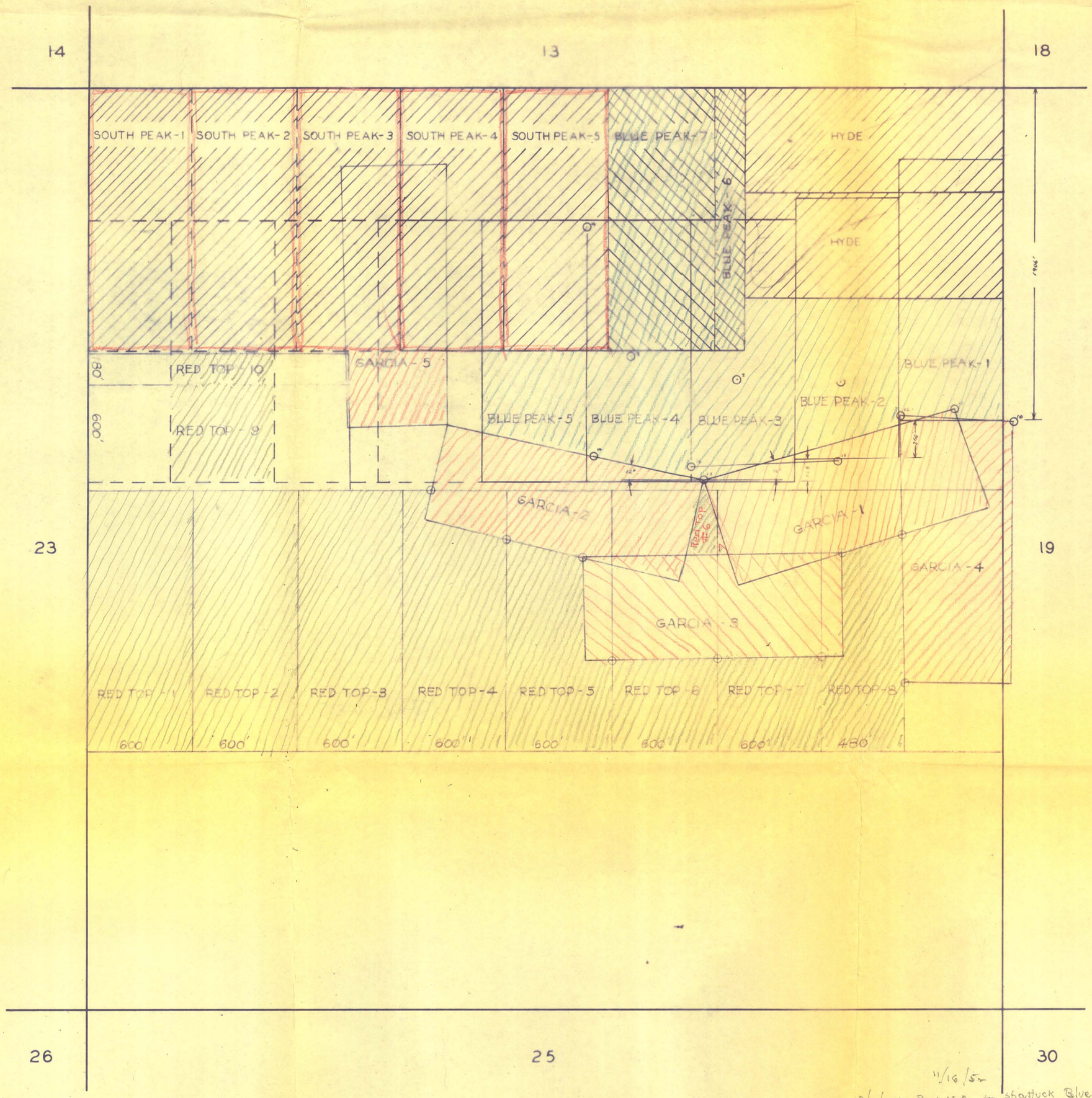

11/16/52
3/20/52 Blue Peak M.Co to Shattuck Blue Peak 1 To 7 mc
Red Top 1 To 10 mc
4/14/51 Andrews Garcia et al to A A Greer-Garcia 1-5 mc
Amend. 11/15/51 " to Blue Peak MCo
2/6/52 Minoletti to Snover South Peak 1-5 mc
Sch.

LEDGEND

- ⊙ CENTER MON. ZUNI-4
- ⊙ CENTER MON. ZUNI-5
- ⊙ CENTER MON. ZUNI-6
- ⊙ CENTER MON. ZUNI-8
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  NE MON. GARCIA-2
- ⊙ NCENTER MON. GARCIA 2
- ⊙ SW MON. JOHNSON-2
  SE MON. JOHNSON-1
- ⊙ SW MON. JOHNSON-1

13°30'

SECTION 24 T 13 N - R 10 W
MC KINLEY COUNTY - N.M.

SURVEYORS - HERLIHY & CARPENTER
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0 400' 800' 1200' 1600'
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SHATTUCK DENN MINING CORPORATION
120 BROADWAY
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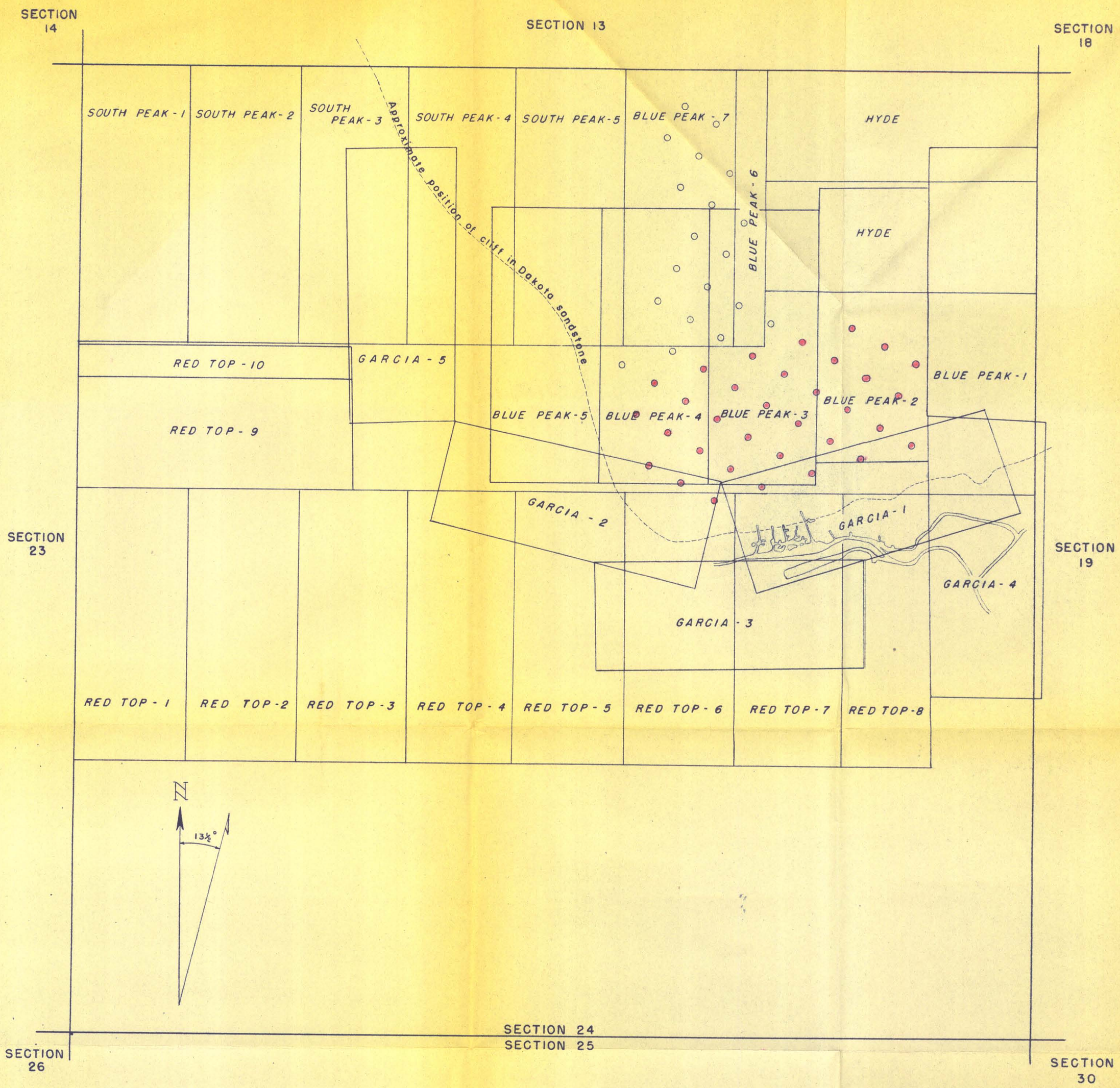

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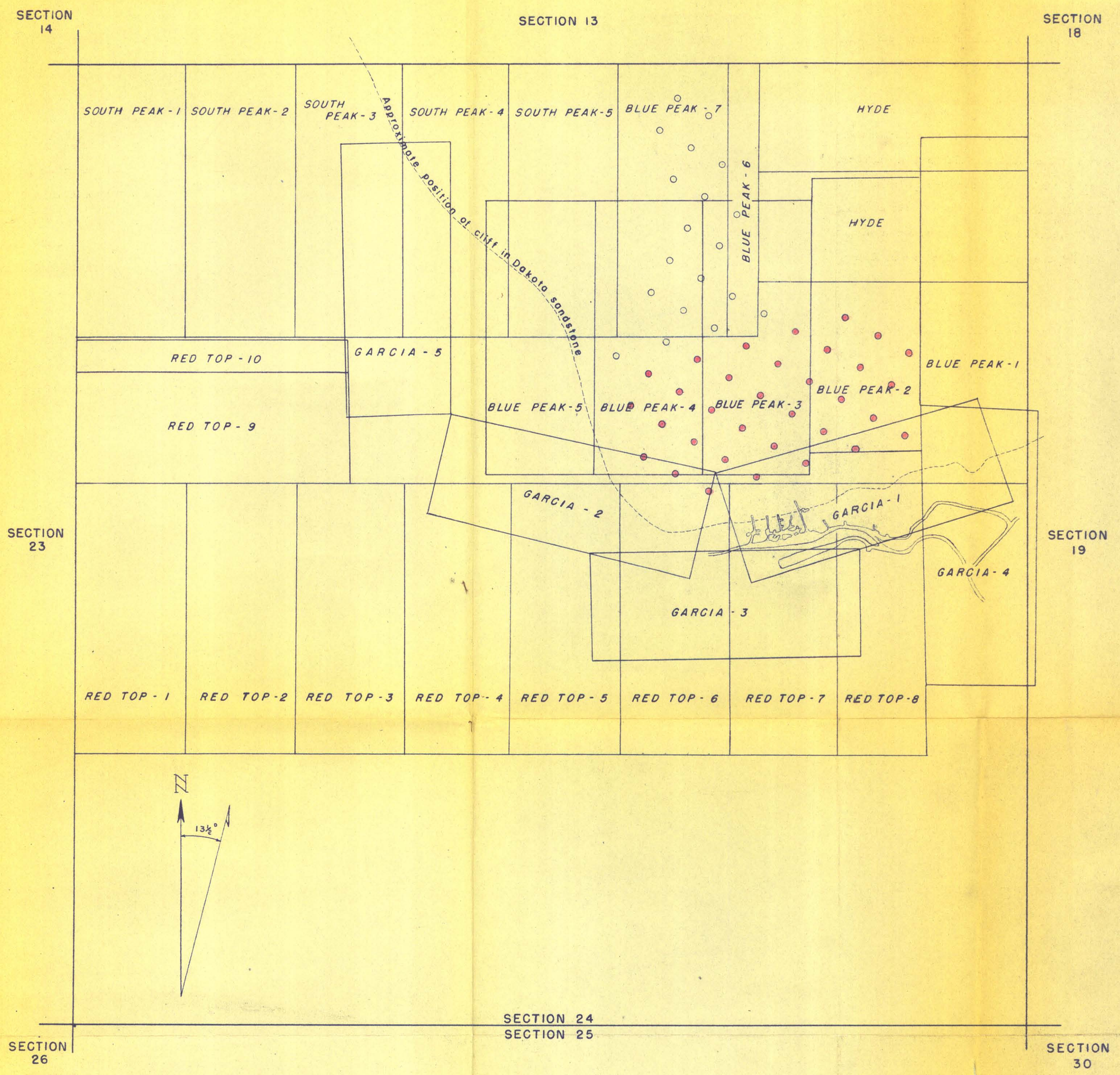
SCALE 1" = 400'

● PROPOSED DRILL HOLES



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