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UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13, POST OFFICE BLDG.
KNOXVILLE 2, TENN.

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NOV 21 1955

November 17, 1955

Mr. Harold Volgenau
Eastern Uranium, Inc.
35 West 53rd St.
New York 19, N. Y.

Re: DMEA-3918 (uranium)
Stephen Ballist Warantee Tract
Carbon County, Penna.

Dear Mr. Volgenau:

Your letter of November 12, and memorandum dispassing various aspects of your application have been reviewed here, and forwarded to our Washington office. Final authority for approval or denial of applications rests with our Washington staff, and you will be advised by them when a decision has been reached.

Very truly yours,

Robert A. Laurence
Executive Officer, DMEA
Field Team, Region V
Room 13, Post Office Bldg.

RAL/em
cc:
Opr. Com.
Lynch

Miller
Files

EASTERN URANIUM INC.
Exploration — Mining
3[illegible] WEST 53RD STREET
NEW YORK 19, N. Y.
COLUMBUS 9-3772

RECEIVED
NOV 21 1955

November 12, 1955

RECEIVED
NOV 17 1955
Knoxville, Tenn.

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Knoxville 2, Tennessee

Re: DMEA - 3198 (uranium)

Dear Mr. Laurence:

In Washington last week, I had an opportunity to discuss this application with Messrs. Ernest Ellis, Michael Ching and William P. Williams. Naturally, we were disturbed over what they had to say about it.

As a consequence, we have prepared this memorandum in the hope that it will help to clarify the questions which they have raised. I'm sending the original to you as I was told that the application is now in your hands.

Tom. Walthier, as our chief consultant, supplied the geological data, and he concurs in principle with the memorandum as a whole.

Sincerely yours,

Howard L. Volgenau

Howard L. Volgenau
President

D.M.E.A. Docket No. 3198 (Uranium)

Memorandum on certain technical and practical questions involved in an application for financial assistance by Eastern Uranium, Inc. to explore a uranium prospect near Penn Haven Junction, Pennsylvania.

Approval of this application, it is reported, has been jeopardized by reason of certain technical and practical objections which have been raised by the U. S. Geological Survey and the Bureau of Mines. This memorandum presents new fact and opinion bearing directly on the points in question which we would like to have considered as a part of the application.

I. The technical questions relate to the geology of the prospect. It is our understanding that the following specific objections have been advanced, presumably to support a contention that the prospect is too risky to be explored with public funds.

Objection - The geology of the area is new insofar as uranium exploration is concerned; too little is known about it; Eastern is pioneering and should develop more information with its own resources.

Answer - In terms of uranium exploration this area is not new. The earliest discovery of uranium in this country was made near Mauch Chunk (Jim Thorpe) six miles south of the prospect. This deposit appears in a geological formation (Catskill) similar to that of the prospect.

This year the Lehigh Coal & Navigation Co. explored other deposits near Mauch Chunk in what is known as Mt. Pisgah. The results of this exploration are undoubtedly known to U.S.G.S. and the Bureau of Mines. In 1953, the prospect and the adjacent area was made the subject of a competent study by Harry Klemic, U.S. Geological Survey (Circular #350). Prospecting done by Eastern Uranium, Inc. during the past eight months not only confirms the findings of this study, but it has greatly increased our knowledge of the number and extent of radioactive occurrences which exist in the area.

Apparently, this information is contrary to the prevailing opinion of the area, possibly due to the fact that other prospectors have found exploration too difficult by ordinary methods because of the rough terrain and the heavy vegetation.

The surveys made by Eastern have employed the usual radiometric and sampling methods. In addition, Eastern has perfected a geochemical technique, new as applied to uranium exploration, which has been remarkably effective. By these methods substantial evidence has been gathered of the existence of ore deposits in five locations on both sides of the Lehigh River north and south of the prospect which is the subject of this application.

Thus, it appears that exploration of the prospect would aid greatly in evaluating a sizeable area showing great promise.

Further exploration, except by drilling, would not be feasible in view of the work which has been done, and diamond core drilling is the course proposed in the pending application.

It may be said generally that there are many similarities between the occurrences at Penn Haven Junction and those on the Colorado Plateau. The similarities which, in our opinion, are deserving of the most careful consideration are:

1. The uranium occurs in fluviatile sandstones.

2. They are associated with a plateau composed of thick sequences of flat-lying sediments.

3. Faults are spatially associated with the uranium minerals. Eastern's geologists find a consistent relation at Penn Haven Junction between sheer zones, faults and uranium. Likewise almost all the ore on the Colorado Plateau, including ore produced thusfar and in the known reserves, lies close to or along the faults bordering the salt valley anticlines.

4. A prevalent theory is that uranium concentrations on the Colorado Plateau are associated with anticlines. The occurrences at Penn Haven Junction are at the crest of an anticline.

   Just across the Lehigh River is an outcrop where carnotite impregnates the sandstone in roll structure for more than 250 feet on the same anticline as the prospect. Not only are the occurrences on the same anticline, but the several sedimentary structures found to date indicate that the ancient streams that formed the host rock flowed parallel to what is now the axis of the fold.

   It is well-substantiated on the Colorado Plateau that the uranium ore bodies are elongated parallel to the direction of the ancient stream beds. Similarly at Penn Haven Junction the uranium is concentrated along the axis of the fold.

Despite these similarities, it is conceded that all of the many criteria used in prospecting on the Colorado Plateau have not as yet been observed in Pennsylvania.

The Western criteria have been formulated from a great mass of data resulting from thousands of man hours of field work and millions of feet of diamond core drilling. But the absence of some of these criteria in the case of the Penn Haven Junction prospect should not in itself be a reason for rejecting the application.

If that were the rule exploration by the government in the West would have been seriously hampered. Obviously, all western deposits are not identical. The Happy Jack mine bears little resemblance to the Cougar Mine or the Rattlesnake group. These three differ from the MiVida deposit and from Temple Mountain. The concretionary masses at Pumpkin Buttes, Wyoming, show still other features, and the newly discovered large ore bodies associated with the lignites of South Dakota are a new variation of the western types.

Granting that there are many variations to the basic association of uranium in sandstone, as shown by western experience, it is only to be expected that the deposits at Penn Haven Junction should not be identical to the deposits on the Colorado Plateau. In our opinion, however, these deposits are similar to the Salt Wash deposits at Uravan, Colorado, and in important particulars to other western deposits, and it is in these similarities that our reliance can be confidently placed.

Objection - It is said that delineation of the ore bodies is difficult because of their "spotty" character, and the absence of ore guides such as mudstones and carbonaceous material found usually in connection with deposits on the Colorado Plateau.

Answer - To characterize the Penn Haven Junction deposits as "spotty" is gratuitous. It is true that there are a number of relatively small occurrences in the face of the cliff which, incidentally, give readings as high as 4 MR/PR, but the main bodies extend 140 feet along the face of the cliff and vary in thickness from two to six feet.

It may not be correct to say that there is a total absence of ore guides. The Mt. Pizgah prospect of the Lehigh Coal & Navigation Co. shows uranium associated with carbonaceous material. A similar relation has been observed on the Marie Owen tract adjacent to the prospect to the south which was recently purchased by the lessor, Dr. S.F. Druckenmiller, and made subject to the lease held by Eastern.

Further exploration by drilling which is the purpose of the application may disclose ore guides just as it did in the west where they were not obvious in the beginning.

Objection - It is said that there is not reason geologically to suppose that the ore bodies, visible in the face of the cliff, will improve as they extend into the cliff.

Answer - Apparently, it is agreed that elongation of the ore bodies will cause them to extend into the cliff, and this is indicated by the drilling which has already been done. If one could determine solely by geological evidence whether or not such ore bodies increased or decreased in size as they extended underground, there would be little or no use for diamond core drilling.

Nevertheless, it should be noted that it is the vertical plane of the ore bodies which is exposed in the face of the cliff, and that they are irregular in shape. As they extend into the cliff on a horizontal plane it is most likely that they will continue to be irregular in shape; that is, that they will grow larger or smaller. Drilling similar deposits in the west shows this to be the case. And the purpose of the drilling program proposed in this application is to discover if these irregularly shaped ore bodies actually pinch or swell.

Opening a Shaft - It has been suggested that Eastern explore the prospect further by opening a shaft in the face of the cliff and "following the ore." If this is a formal recommendation, we cannot fail to regard it seriously, and we would be willing to accept it provided the necessary financial assistance were granted by D.M.E.A.

Our considered opinion, however, is that a shaft would not prove as much as the proposed drilling program. For the same amount of money, only a relatively small part of the prospect could be explored because of the high cost of a shaft per linear foot. Drilling on the hole spacing proposed in the application would be less likely to miss significant ore deposits.

It is possible that the ore may pinch off completely to reappear deeper in the cliff. Exploring by means of a shaft, rather than by drilling, might result in a premature abandonment of the prospect. For this reason, Stage II of the drilling program is considered as critical as Stage I.

II. The practical questions which have been raised in connection with this application relate to the means of access to the project, and the convenience and safety of drilling it.

The prospect can only be reached on foot by crossing the right-of-way of the main line of the Lehigh Valley Railroad. There is not cross-over for vehicles, although one could be provided. It has been suggested that written permission be obtained to trespass on railroad property before attempting the drilling program.

The right of trespass has been enjoyed by Eastern for the past eight months. This applies not only to the right-of-way adjacent to the prospect, but also to the use of the road from Waverly to Penn Haven Junction. Eastern representatives individually have granted the right of trespass by signing waivers, and it is understood that employees of contract drillers and others will be granted similar privileges in the same manner.

It should be noted also that the lessor, Dr. S.F. Druckenmiller, holds title to the property which is the right-of-way of the railroad. The Lehigh Valley legally has the use of the right-of-way only by right of adverse possession.

If heavy equipment or supplies had to be moved to the site, no question of trespass would be involved. Requests would be placed with the operating department of the railroad for transportation facilities which would be provided at customary rates.

In the bids submitted in connection with this application by contract drillers they state that such arrangements had already been made with the Lehigh with respect to their requirements.

The Lehigh Valley Railroad has been completely cooperative. Tentative agreement has already been reached for the installation of a siding along the cliff whenever it may be required. The railroad is eager to have the benefits of any tonnage developped from the prospect.

The railroad has shown no concern over possible interruption of traffic because of landslides or damage to telegraph wires which run along the edge of the cliff. These reasons may be cited:

1. No rock slides have been experienced in this immediate area even during the torrential rains of recent years.

2. Loose rock on the upper slope is largely talus with few boulders.

3. The slope is heavily wooded with small to medium sized trees and dense thickets and underbrush. This growth is thickest along the lower benches of the cliff where it would be likely to catch and hold slides of loose material from the upper slope.

Eastern recognizes its responsibility for maintaining ready access to the prospect, and reasonably safe conditions for employees and the railroad. It is prepared to do whatever may be necessary to discharge this responsibility especially if it might have a bearing on the approval of the application. On the other hand, it seems needless to require written permissions from the railroad, which the railroad itself does not consider necessary, as a condition precedent to approval of the application.

[illegible] been other objections, technical or practical, raised to [illegible] application of which we are not aware. If so, we would appreciate an opportunity to attempt to answer them.

We are convinced, however, that this application can be approved on its merits without further delay. In fact, it would, in our opinion, be against the interest of the government to reject it.

If the purpose of D.M.E.A. is to aid in proving existing reserves of strategic materials, this purpose can be carried out at Penn Haven Junction. For to prove this prospect is to take the first step in proving what is potentially a new uranium province.

On its own initiative and with its own resources, Eastern has opened up

this possibility by intensively prospecting an area which heretofore has been shunned. It has done the most critical drilling of the prospect to substantiate the geological evidence at hand. It is prepared to sustain an out-of-pocket loss in drilling Stage I while assuming its share of the cost of carrying out the entire exploration program proposed.

With due regard to the risks inherent in a project of this kind, we must conclude that it offers exceptional public benefits in return for a justifiable use of public funds. We sincerely trust this application will be approved promptly.

11-8-55 zjw

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November 4, 1955

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville

Subject: Field Examination Report, DMEA-3918 (uranium)
Eastern Uranium, Inc., New York, N.Y.
Stephan Balliet Warrantee Tract, Carbon County, Penna.

Enclosed are four copies of the subject examination report.

Because of the relatively high cost as compared to the size of the potential discovery, and because of the uncertainties about access, we agree with the examiners' conclusions and recommend that it be denied without prejudice. Re-consideration of a new application should be made only after applicants show proof of authorized access routes and geologic probability of a better target than is suggested by the present exposures.

Robert A. Laurence
Executive Officer, DMEA
Field Team, Region V

11/14/55

V. J. Lynch, Member
Bureau of Mines

RAL/sm.
Lynch - Millar, Files

Field Team Report on Examination of Property
by
H. L. Burmeister and W. P. Williams[1]

DMEA Docket 3918 (Uranium)
Applicant: Eastern Uranium, Inc.
35 West 53rd St. New York 19, N.Y.
Property: Stephan Balliet Warrantee Tract,
Town of Lehigh, Carbon County, Pa.

- Summary -

This property was examined by the field team representatives on August 26 and 27, 1955. The examiners were accompanied by Mr. Howard L. Volgenau, president of Eastern Uranium Inc. and geologists Harry Klemic, John Eric and Alfred R. Taylor of the Geological Survey. Representatives of Hoffman Brothers Drilling Co. and Sprague & Henwood, Inc. were on the property the first day of examination. Two full days were spent in the field.

The presence of uranium minerals on this property is definitely established. Chemical and radiometric assays of samples taken from the property show that the grade of small, scattered lenses and seams in the Catskill sandstone may be as high as 0.56 percent uranium.

The area was explored for miles in an effort to find an access route for drilling equipment. The only one found led from the railroad tracks up a 55° slope between a 4-foot opening in the cliffs.

The entire drilling area is on a consistent 45° upward slope from the top of the 30' high railway cut. The slope is covered with medium to large size loose slabs of trap rock which make the use of a bulldozer impossible for making cross area trails for the drill or excavating for setups. Labor must be used for this work to ensure that no falling rock breaks the telegraph lines below or lodges on the railway tracks. Very few trees in the drilling area are of sufficient size to be used as anchors for pulling the drills up the slope. These conditions are largely responsible for the high drilling costs submitted.

1/ H.L. Burmeister, engineer, Bureau of Mines, and
W. P. Williams, geologist, Geological Survey

Due to the fact that access can at present be gained only over the railroad rights of way, it is believed necessary that the applicant furnish proof of permission to pass with equipment and also to do exploration and mining work on the slope above the tracks which may be on the right of way. No such permission has been forwarded by the applicant since being requested by the engineer.

The exposure examined for the presence of radioactive minerals consists of sandstone which forms the nearly vertical face of a railway cut. The face is approximately 300 feet long and averages 30 feet high. Basic section, Fig. 3, is an enlargement of the area examined as it appears in U.S.G.S. Circular 350 by Harry Klemic and H. C. Baker. To this section has been added the data contained in the application and that obtained by the geologist during the examination. A revised drilling program (Fig. 2) and cost data are included for possible future reference.

Radioactivity is confined in the exposures examined to areas of small dimension both vertically and longitudinally along the face of the rock cut. These areas are scattered and no economic method of mining could be applied to a deposit as characterized by the exposures examined. It is estimated that a 5' x 7' tunnel driven into the rock face on the area of greatest radioactivity would result in a dilution of approximately 5 to 1. Sorting would have to be done with the aid of instruments as the radioactive rock and the barren host rock appear the same visually. Measurements of radioactivity were made and samples were cut and analysed by both the Geological Survey and the applicant. The results obtained and plotted on Figure 3 reveal the spotty nature of the deposit and also the large discrepancies in results.

- Conclusions -

The area examined comprises a large cross-section of the formation in which radioactivity occurs and should be a fair representation of conditions which might be found by further exploration. Where uranium mineralization occurs in the area examined, the values are not high enough or the volume large enough to support the dilution necessary in the smallest practical mine working. Continued permission of access by presently known routes for the purposes of exploration or mining is not satisfactorily established. Actual ownership of the land for a distance of 200 feet west from the centerline of the railroad tracks is considered to be unclear.

No practicable guides to ore have been established, and controlling factors with regard to location and position of ore are unknown. A high-cost drilling project would probably result in the discovery of a small amount of uranium ore, but the examining team does not believe that such a project would succeed in adding significant reserves to the supply of uranium ore.

- Recommendations -

Because of the sporadic distribution of mineralized rock on the property, and because of unsolved property access problems, the examining team recommends that the application for DMA assistance be denied without prejudice. If the applicant provides access for heavy equipment to the property, and if additional work by the applicant shows that the ore occurs in such a pattern or in such a zone as to constitute a definite exploration objective, then a new or revised application should be seriously considered.

The application was discussed with Mr. Jack Kratchman of the U.S. Atomic Energy Commission for the purpose of evaluating the property.

Name and Location of Property

The property consists of 97¼ acres of timberland and is known as the Stephen Balliet Warrantee Tract, situated in the Town of Lehigh, Carbon County, Pa., approximately four miles east of the village of Weatherly, "A" Fig. 1. The drilling area is about one-quarter mile south of Penn Haven Junction, "B" Fig. 1.

Access

The closest public road is about 4½ miles distant from the exploration area. The only vehicular approach to the area at present is to obtain permission locally from the Lehigh Valley R.R. to pass a locked chain gate giving access to the railroad right of way between Weatherly and Penn Haven Junction. Double tracks previously occupied this right of way but one track was removed and its place taken by a railroad-owned vehicular road. Many trains still use the remaining track. Upon arrival at Penn Haven Junction, park the car and walk southeasterly about one-quarter mile on the three-track main line roadbed used jointly by the Lehigh Valley R.R. and the Central Railroad of New Jersey. The uranium mineralization occurs near the first signal semaphore encountered. (Fig.2)

The only other remotely feasible method of access to the drilling area could be gained by obtaining permission to cross a large State Game Preserve and dulldozing a road for about four miles through heavy brush to the hilltop above the drilling site. If this approach was used, equipment would have to be secured with cables and skidded down the consistent 45° incline of the drilling area which is covered with loose, flat and sliding trap rock.

Competency of Applicant and Operating Personnel

Mr. Howard R. Volgenau states that Eastern Uranium, Inc. is exploring for uranium in several other localities. The location of these explorations

was not made known to the engineer. A geologist is an officer of the company.

The drilling program was poorly laid out, the costs excessive and apparently no plans had been made concerning access of equipment or movement of equipment over the drilling area. The financial responsibility of the applicant company was not investigated.

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Applicant's Property Rights

The applicant holds this land under lease from the owner, Dr. S.F. Druckenmiller, Lansford, Pa. The lease dated April 30, 1955, provides that mining operations must begin within three years. If active mining is started within three years, the lease will continue to be in effect until March 1, 1962. Renewal of lease may be made in successive five-year periods.

A copy of the record of Dr. Druckenmiller's land is attached to the lease and is a part of the application. It is believed that the following points are important in considering this application: This land was formerly owned by the Lehigh Valley R.R. and was then sold for delinquent taxes to Dr. Druckenmiller. When in possession of the railroad the right of way along the Lehigh river was on railway property and was probably not mentioned in their deed. It is noted that the description of Dr. Druckenmiller's tax purchase gives ownership to the Lehigh river and does not mention the presence of the railroad right of way along the river, or of the one connecting Penn Haven Junction and Weatherly. (Fig. 2)

As previously stated, the road occupying a portion of the railroad roadbed between Weatherly and Penn Haven Junction is a private one with access only through a locked chain gate. Use of this road for the four miles necessary can probably be denied at any time. The uranium mineralization outcrops in the vertical wall of the railroad right-of-way cut. To reach the drilling area it

is necessary to actually traverse the rails of the track from Penn Haven Junction because of the location of switching devices between the tracks and the cut wall, which extends the entire distance. The advisability and probable necessity of procuring written permission from the railroad for continued passage was brought to the attention of Mr. Volgenau a number of times during the examination. Several communications have been received from him but no mention has been made of this matter. Mr. Volgenau told the engineer that in his belief the railway right of way in this general locality extends 200' on each side of the center of tracks. If this is correct the right of way would include all the proposed holes in Stage I and 13 holes in Stage II. (Fig. 2)

Description of Property

The entire area of leased property lies on a ridge trending east and west. The ridge slopes both northward and southward at steep angles, to creeks emptying into the Lehigh river. The drilling area lies on the eastern end of the ridge which slopes downward a consistent 45° to the top of the vertical 30-foot railway cut in which the uranium mineralization is found. Telegraph lines clear the top of the railroad cut by about eight feet. (Fig. 2)

There are no mine workings on this property. Exploration at present consists of seven very shallow diamond core holes drilled by the applicant and shown on Figs. 2 and 3. There are no facilities or equipment on the property and no production has been made.

Geology and Ore Deposits

A good geologic description of the uranium occurrences at Penn Haven Junction and other points in Carbon County, Pennsylvania, is presented in U.S.Geological Circular 350 by H. Klemic and R. C. Baker[2/].

The Eastern Uranium Company property is located on the west bank of the Lehigh River and on the north flank of Broad Mountain anticline. The following stratigraphic section is found along the Lehigh River in the vicinity of the property:

	Feet
Pennsylvanian:	
Productive coal measures	975
Pottsville conglomerate	880
Mississippian:	
Mauch Chunk shale	2,170
Pocono gray sandstone	1,255
Devonian:	
Catskill red sands and shales	7,145
Chemung and Portage shales and flags	1,290
Genesee shale	290
Hamilton shale	760
Marcellus shale	800
Oriskany sandstone	340
Helderberg limestone, lower part	295
Silurian:	
Onondaga and Clinton red and gray shale and marl	2,000
Tuscarora sandstone	665
Oneida conglomerate	160
	19,325

The Catskill formation of Devonian age is exposed on the property in a vertical cliff in a cut along the Lehigh Valley Railroad.

2/ Klemic, H., and Baker, R. C., Occurrences of Uranium in Carbon County, Pennsylvania, U.S.Geological Survey Circular 350, 1954

The cliff is about 300 feet long and about 30 feet high. The Catskill formation in the cliff is a massive, greenish-black to green-gray sandstone interbedded with thin, shaly sandstone and graywacke. Weathered parts of the outcrop may be black--probably due in part to manganese oxide stain.

The Catskill sandstone at Penn Haven Junction is composed mostly of quartz, feldspar, and mica in a chloritic matrix. When viewed under low power magnification the sandstone shows trace amounts of pyrite and galena as small, widely scattered interstitial grains. Limonitic discoloration is common along fractures in the sandstone.

The uranium may be present as a black mineral that may be seen with magnification, in selected specimens, scattered through the sandstone. An X-ray study by the AEC tentatively identifies the black mineral as uraninite. On partly weathered surfaces, such as fractures and bedding planes, yellow and orange-yellow uranium oxides may rarely be found. The oxides appear to be carnotite and gummite. Kasolite, $Pb(UO_2)SiO_4.H_2O$, and uranophane, $Ca(UO_2)_2Si_2O_7.6H_2O$ have, however, been positively identified at Penn Haven Junction by others 3/

Figure 3 shows the outcrop, in section, of the uranium-bearing sandstone. The rocks are folded into a small anticline which is superimposed, with axes roughly parallel, on the main Broad Mountain anticline. The uranium minerals appear to be localized along the small Penn Haven anticline. The small anticline extends across the Lehigh River about 500 feet to the east where the fold may be seen again. Uranium minerals are also present across the river but in smaller amounts.

3/ Mineral Identification by A. D. Weeks, D. Fisher, and E. A. Thompson. Chemical compositions from Frondel and Fleischer. U.S.G.S. 1952

The sandstone is not mineralized throughout. Instead, after traversing the cliff with scintillometer and marking the mineralized areas with chalk, it is noted that the mineralized areas are very irregularly shaped. The thickness of the mineralized rock is generally only a few inches, and the mineralized rock pinches out within a maximum distance of a few feet. The mineralized rock courses its irregular path through the sandstone without apparent regard for lithologic characteristics, rock color, bedding, or fracturing. No uranium precipitant, such as carbonaceous material or hydrocarbons were noted in the outcrop. Carbon may be present in microscopic particles. The use of a gamma-ray detection instrument is nearly always necessary to distinguish mineralized from barren rock. The scattered and very irregular distribution of mineralized rock makes the deposit unattractive from an economic mining standpoint.

Scintillometer traverses across the face of the cliff led the examining team to conclude that not enough mineralized rock is present at the outcrop to permit economic mining either by conventional underground methods or by open cut. The cliff face at Penn Haven Junction affords an excellent exposure, in two dimensions, of the uranium-bearing Catskill sandstone. Field examination afforded no geologic reasons why the amount or grade of mineralized rock should increase in the third dimension--back into the mountain.

The best of a large series of samples taken by the USGS ran 0.56 percent uranium. Locations and values of samples and scintillometer readings in MR/HR are shown on figure 3. Close correspondence of eU and U assays indicate the deposit is in equilibrium.

At least three other localities are known along the Lehigh River valley where uranium minerals are found. At one locality on Mount Pisgah, about four miles south of Penn Haven Junction, uranium is found in the Pottsville formation of Pennsylvanian age. The deposit on Mount Pisgah strongly resembles the occurrence at Penn Haven Junction in many respects. The Mount Pisgah deposit was explored and developed by the Lehigh Coal and Navigation Company. Twelve lots, or about 320 tons, of ore were mined from an adit and small stope. Average grade of the ore was about 0.20 percent U_3O_8. The ore is stockpiled and has not been shipped. The Mount Pisgah locality is the only place in Carbon County where any attempt at uranium mining has been made. To my knowledge no ore reserves remain of the Mount Pisgah deposit.

Because the ratio of mineralized rock to barren rock is so low and because the mineralized areas are so small, any exploration drilling would have to be on very close centers, 25 feet or less, to afford an accurate picture of the geologic conditions involved and to discover the small mineralized areas. The locations of drill holes would have to be on a random and arbitrary basis because guides to ore and ore controls are unknown. Mining would have to be on a costly hand-picking and sorting basis. Exposures in the cliff face show that a closely spaced, high cost per foot, drilling program would probably discover two to six hundred tons of ore that could be hand-sorted from barren sandstone.

Availability of Labor, Material, Water, etc.

Many men who were previously employed in the coal mining industry in the district are now available for employment. A small spring-fed stream sufficient for drilling flows down the draw just south of the drilling area. Quantities of water could be pumped from the Lehigh River if permission could be obtained to pipe it across the railroad right of way. Diesel or

gasoline engines would have to be used as a source of power. The wage scale for common labor varies from $1.25 to $1.50 per hour.

Applicant's Proposal, Alternate Proposal, and Geologic Target

- Applicant's Proposal -

The applicant proposes to diamond core drill a total of 6,575 feet at a total cost of $50,700.00. The program was divided into two stages as follows:

	Total feet	No Holes	Size Core, in.	Total Cost	Cost per Foot
Stage I	675	16	7/8	$6,498.00	$9.626
Stage II	5,900	33	(AX)1-1/8	37,704.00	6.39
Totals	6,575	49		$44,202.00	

Stage I was to be drilled with an applicant-owned gasoline powered hand-held drill producing a 7/8-in. diameter core. It was planned to have Stage II drilled by a contract core drilling company to produce AX(1-1/8") core. The applicant's estimate of cost by contract drilling was made before bids were received from contractors. Up to the time of examination no consideration had been given to the mode of access to the drilling area and very little to the drilling pattern or the difficult problem of making drill set-ups and moving the drill between set-ups.

-Alternate Proposal -

An alternate or revised drilling and cost program, which could be incorporated in a contract, was compiled in conjunction with Mr. Volgenau at the time of examination. This program involved set-up locations, hole angles and depths for both Stage I and Stage II. Costs involved in Stage II contract drilling were calculated after receipt of bids.

Drill hole layout is shown on Figure 2. Drill hole data and estimated costs are presented on the following pages. These data will be of

possible use in the event that the recommendations of the Field Team representatives do not meet with the approval of reviewing authorities.

Stage I - Hole Layout

Hole (h) Company hole 7 - deepen from 9' to 60'	51'
Holes a,b,c,d,e,f,g (7 holes @ 60' each)	420'
Holes i, j (2 holes @ 25' each)	50'
Total footage, Stage I	521'

Stage II - Hole Layout

Holes 1,2,3,4,5,6,7,8,9,10,11,12,13 (13 holes @ 135' each)	1755'
Holes 14,16,18,20,22,24,26 (7 holes @ 243' each)	1701'
Holes 15,17,19,21,23,25 (6 holes @ 255' each)	1530'
Holes 27,28,29,30,31,32 (6 holes @ 285' each)	1710'
Total footage, Stage II	6696'

Stage II - Drill Site Preparation

6 set-ups for set-up line "A"

7 " " " " " "B"

Summary of Costs

		Total Cost	Cost per Foot
Stage I:			
	Drilling by Eastern Granium	3,520.62	6.76
	" " Sprague & Henwood, Inc.	4,515.11	8.67
	" " Joy Mfg. Co.	4,051.16	7.78
Stage II:			
	Drilling by Sprague & Henwood, Inc.	40,792.05	6.09
	" " Joy Mfg. Co.	37,969.44	5.67

Company Drilling

7/8" dia. core
portable drill

STAGE I

521' d.d. 10 holes @ 15' per shift = 35 shifts

Labor

Driller, 280 hrs. @ 2.50 per hr.	$700.00	
Helper 280 hrs. @ 1.50 per hr.	420.00	$1,120.00
Driller subsistence 35 days @ $6	$210.00	
Helper " 35 days @ $2	70.00	280.00

Use Allowance

Portable drill (cost $1500) 5 yr.amort.& up-keep 35 days @ $1.50 per day	$ 52.00	
2 Water pumps (cost $525) 5 yr. amort. & up-keep 35 days @ .50 per day	17.50	
1 Geiger (counter probe) (cost $250, 2 yrs.) 35 days @ .50 per day	17.50	
28 bits @ 2 reamers @ 20' per bit (resetting @ $30 each)	840.00	
Station wagon (30 mi.per day 35 days @ 7¢ per mile)	73.50	1,001.00

Supplies to be Purchased

Gasoline: drill @ 2 pumps, gas @ 27¢/gal. 15 gal. per shift for 35 shifts	$141.75	
Lub.oil & grease: .30 per shift for 35 shifts	10.50	
Lumber for drill platform 390 b.f. @ $150/M	58.50	
Nails	3.00	
22 core boxes & covers @ $3.00	66.00	279.75

Analyses

10 chemical analyses @ $5.00	$ 50.00	
10 radiometric determinations @ $5.00	50.00	100.00

Technical Assistance

Geological direction & supervision: 7 weeks @ $65.00	$455.00	455.00

Insurance & Payroll Taxes on $1575

Fed. & Stage Unemp. Ins. @ 3.0/$100	$ 47.25	
Stage disability @ .55/$100	8.66	
F.I.C.A. @ 2.00/$100	31.50	87.41

Core Storage

3 months @ $30.00		30.00

Contingencies

5% of $3353.16		167.66
	Total Stage I	$3,520.82

Cost per foot, Stage I = $8.76

By Contract at Contractors' Prices

Sprague & Henwood, Inc.

STAGE I

(Sub-Contract Costs)

521' AX drilling @ $5.85	$3,047.85	
Preparing 10 locations @ $25.00 each	250.00	
9 moves @ $30.00	270.00	
Total - Drilling, moving, set-ups		$3,567.85

Contract cost - Set-ups, moving, drilling - $6.85 per foot

(Non-Contract Costs)		
(Use Allowance)		
Station wagon 14 trips, 50 mi. each @ 7¢/mile	$49.00	
Geiger probe (cost $250, @ 50¢ for 14 days)	7.00	
Total Use Allowance		56.00
(Supplies to be purchased)		
22 core boxes & covers @ $3.00	$66.00	66.00
(Analyses)		
10 chemical @ $5	$50.00	
10 radiometric @ $5	50.00	100.00
(Geological direction & supervision)		
7 weeks @ $65	$455.00	455.00
(Rentals)		
Core storage - 3 months @ $10	$30.00	30.00
(Insurance & Payroll taxes on $455.00)		
Fed. & State Unemp. Ins. @ $3/$100	$13.65	
State Disability @ $.55/$100	2.50	
FICA @ $2.00/$100	9.10	25.25
Total less contingencies		$4,300.10
Contingencies on $4,300.10 @ 5%		215.01
Total Cost, Stage I		$4,515.11

Cost per foot - $6.67

By Contract at Contractor's Prices

Joy Manufacturing Co.

STAGE I

521' AX drilling @ $6	$3,126.00	
Moving & set-ups	0.00	
Total Drilling (no charge for moving or set-ups)		$3,126.00

Contract Costs $6.00 per foot

- - - - -

Non-Contract Costs

All Non-Contract Costs are same as for Sprague & Henwood, Inc.

except for contingencies listed below:	732.25
	.....
Contingencies on $3,856.25 @ 5%	$192.91

Total Cost, Stage I	$4,051.16
Cost per foot - - - -	$7.775

Sprague & Henwood, Inc.

STAGE II

Sub-Contract Costs:

6696' AX core drilling @ $4.95 per ft.	$33,145.20	
Preparing 13 locations @ $50	650.00	
Moving, set-up to set-up 13 @ $75	975.00	$34,770.20
Total Sub-Contract		

Non-Contract Costs

Use Allowance:

Based on 20'/shift, or 335 total shifts (135 shifts each for 2 drills & 65 shifts for a single drill) Total days = 200

Station wagon - 30 $/day for 120 days @ 7¢/mile	252.00	
Geiger counter & probe (cost $250, 2 yrs. amort.) 120 days @ 50¢	60.00	
Total Use Allowance		312.00

Supplies to be purchased:

280 core boxes & covers @ $3		840.00
Rentals: Core storage 11 months @ $10		110.00
Assays: 30 chemical analyses @ $5	$150.00	
30 radiometric determinations @ $5	150.00	
Total assaying		300.00

Technical Assistance:

Surveyor & assistant, 2 days' field work @ $50 (to lay out Stage II holes and tie in holes in Stage I)	100.00	
Surveyor, 1 day @ $35 (map with hole elev. & locations)	35.00	
Geologic direction & superintendence, & assist handling core 30 weeks @ $65	1950.00	
Total Technical		2,085.00
Labor: Handling core - 240 hrs. @ $1.25/hr.		300.00
Insurance & Payroll Taxes on $2385.00:		
Fed. & Stage Unem. Ins. @ $3/$100	71.55	
State Disability @ $.55/$100	13.12	
FICA @ $2/$100	47.70	132.37
Contingencies @ 5% on $38,049.57		1,902.48

Total Cost (STAGE II - by Sprague & Henwood, Inc.) $40,792.05

Cost per foot for 6696' - $6.092

Joy Manufacturing Co.

STAGE II

after receiving bids

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Sub-Contract Costs:

6690' AX core drilling @ $4.50 per foot	$30,132.00	
Preparing 13 set-ups and preparing locations for 32 holes @ $150 per each set-up	1,950.00	
Total Sub-Contract		$32,082.00

All Non-Contract costs are the same as for Sprague & Henwood, Inc. except Contingencies $ 4,079.37

Contingencies 5% on $30,161.37 1,508.07

Total cost STAGE II (by Joy) - - $37,969.44

Cost per foot - - - - - - - - - $5.670

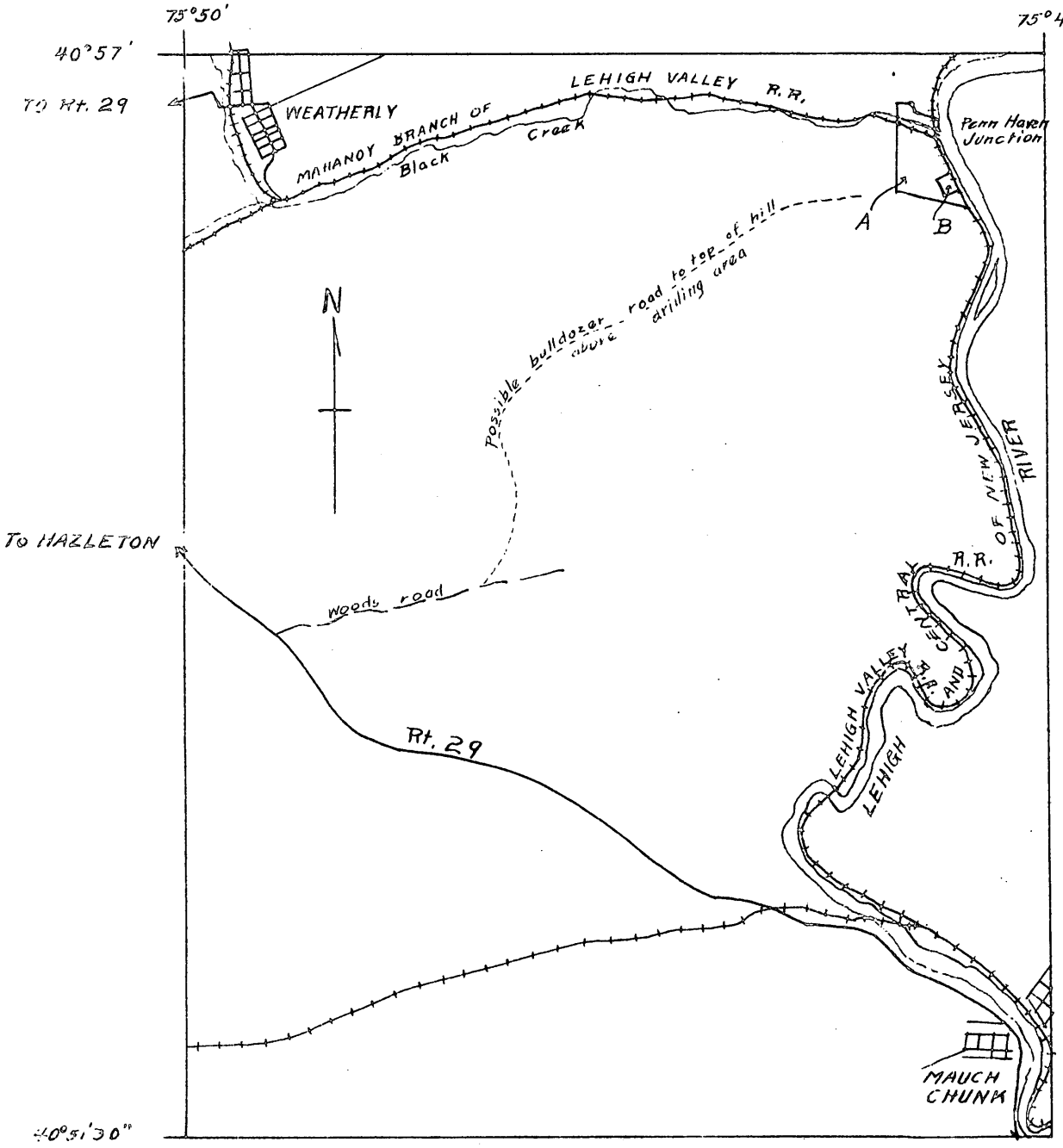
H. L. Burmeister

H. L. Burmeister, Mine examination & Exploration engineer.

W. P. Williams

W. P. Williams, Geologist

November 3, 1955



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EASTERN URANIUM, INC.
CARBON COUNTY, PA.

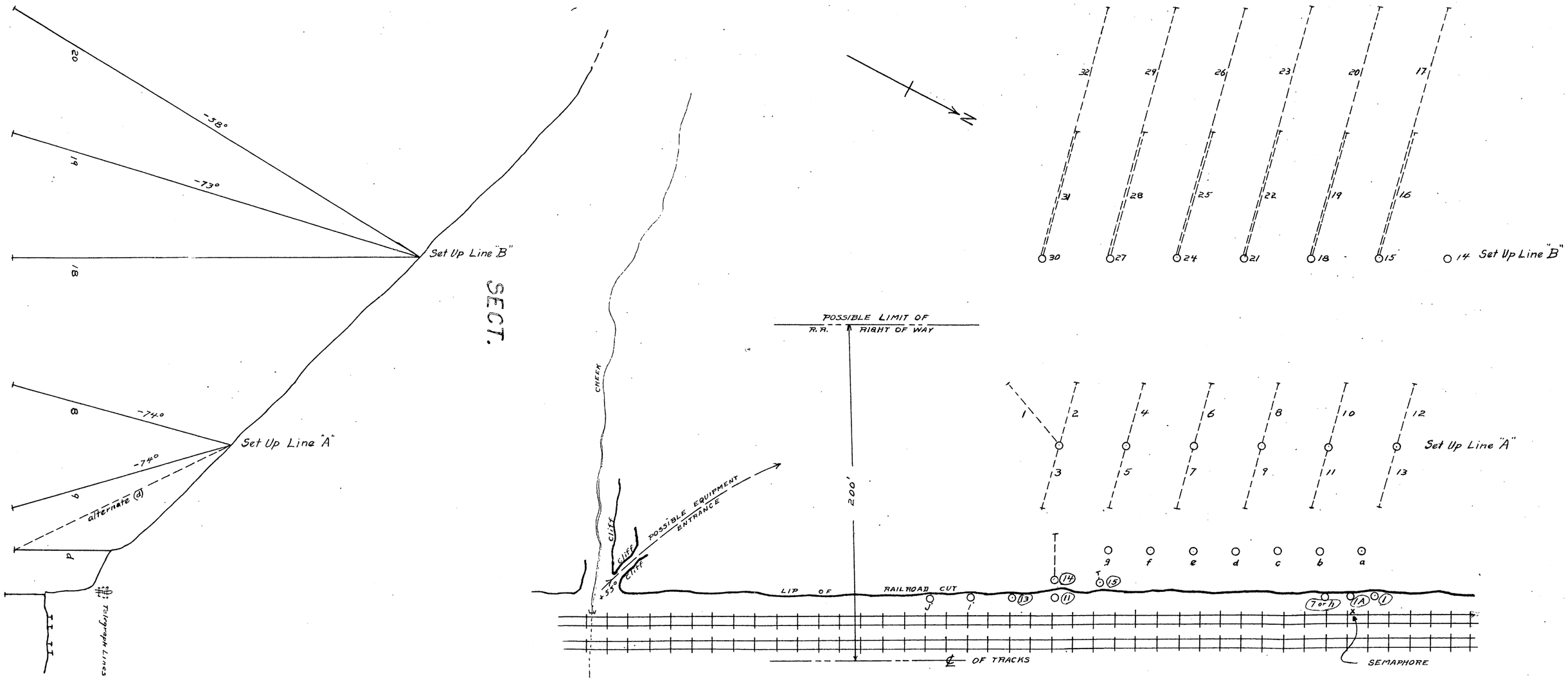
STATE OF PENNSYLVANIA
MAUCH CHUNK and HAZLETON QUADS.

DMEA DOCKET NO. 3918

U.S.D.M. AUG. 1955

0 miles 1

FIG. 1



(11) Company drilled holes

EASTERN URANIUM, INC.
CARBON COUNTY, PA.

ALTERNATE DRILLING PLAN

U.S.B.M. SEPT. 1955

0 inches 1
0 feet 50

FIG. 2

Crawford

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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. 3918
Metal or Mineral Uranium
Date Received 7-28-55
Estimated Cost $47,202
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: Eastern Uranium, Inc. (A Delaware Corporation)
35 West 53rd Street
New York 19, New York
(names of Officers and Directors attached)

(*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
(see copy of lease attached)

(*b*) State any mine name by which the property is known. none

(*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. copy of lease attached

(*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.

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.

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 15 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.).

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated July 28th, 1955

Eastern Uranium, Inc.
(Applicant)

By Howard L. Olgesson

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

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Attachment to Section 1 (c)

Application for aid in an exploration project by

EASTERN URANIUM, INC.
35 West 53rd Street
New York 19, N.Y.

Officers & Directors

Howard L. Volgenau President & Treasurer Director	Partner, Coulter & Volgenau Associates Secretary-Treasurer, Scarsdale Uranium Mines, Ltd.
Homer H. Woods Secretary & Director	Member, Hodgson, Russ, Andrews, Woods & Goodyear, Attorneys-at-Law, Buffalo, N.Y.
Kenneth L. Pike Assistant Secretary Director	Production Manager, International Paper Company
M. Ronald Brukenfeld Director	Partner, La Grange & Co., Members, New York Stock Exchange
Dr. Brooks F. Ellis Director	Chairman, Department of Geology, New York University; Chairman and Curator of Micropaleontology, American Museum of Natural History.
Dr. Thomas N. Walthier Director of Exploration & Mining Director	Formerly Staff Geologist, Raw Materials Division, Atomic Energy Commission; Supervising Geologist, Iron Ore Company of Canada, and Labrador Mining & Exploration Company.

Attachment to Section 3 (a, c, d) Application for aid in an exploration project by

COPY

EASTERN URANIUM, INC.

THIS AGREEMENT, made the 30th day of April, 1955, by and between Dr. S. F. DRUCKENMILLER of Lansford, Pennsylvania, (hereinafter called "Lessor") and EASTERN URANIUM, INC., a Delaware Corporation, with its principal office located at 100 West Tenth Street, Wilmington, Delaware (hereinafter called "Lessee").

WITNESSETH:

That for and in consideration of the sum of Five Dollars paid by the Lessee to the Lessor, the receipt of which is hereby acknowledged, and of the mutual covenants hereinafter contained, Lessor and Lessee agree as follows:

1 (a) Lessor does hereby grant, demise, lease and let exclusively unto Lessee, and Lessee hereby takes, all that tract of land situate in the Township of LEHIGH, County of Carbon and Commonwealth of Pennsylvania, containing ninety-seven and one-quarter (97 1/4) acres more or less and more particularly described in Schedule A which is annexed hereto and made a part hereof, (hereinafter called the "premises"), for the purposes of prospecting, searching and exploring for minerals of every sort (including without limitation coal, oil, gas and fissionable materials), and mining (including the right to mine by any method or technique now in use such as strip mining or excavation or any method of technique which may at any time in the future be developed or discovered), drilling, storing, preparing concentrating, processing and marketing of said minerals, including storing, concentrating, processing and marketing minerals procured from land outside of the premises.

(b) Lessee represents to Lessor that the primary purpose of this is the prospecting, searching and exploring for fissionable materials, including without limitation uranium and thorium, and the mining, extracting, treating and marketing thereof and that the mining, drilling or producing of other materials will be limited to the extent that the same is necessary for or incidental to said primary purpose.

2 (a) Lessee shall employ geological and geophysical crews to explore for uranium and other valuable minerals on the premises. If such minerals are not found in commercial quantities, Lessee shall give notice to that effect to Lessor within Thirty (30) days from such determination, and this agreement, and the estate hereby conveyed, shall forthwith cease and determine.

(b) Upon proof satisfactory to Lessee of the existence of a sufficient quantity of commercial grade uranium or other mineral, Lessee shall undertake mining operations, and all such operations shall be conducted in a workmanlike manner, and in full compliance with applicable state and federal laws. Failure of Lessee to commence such operations within a period of one year from the date it contracts with the Atomic Energy Commission for the purchase of uranium, or three (3) years from the date of this agreement, whichever is sooner, Lessor, his heirs or assigns, may reenter in and upon the demised premises.

3. Lessee shall have the right on the premises to erect structures, to utilize equipment, to build roads for ingress, egress and other purposes, to lay pipe, to store or deposit waste, rock or other materials, to use water located at the premises, to remove timber and other obstructions and in general to carry on all other activities on the leased premises which may be necessary or expedient to carry out the purposes set forth in paragraph "1" hereof.

4. Lessor hereby releases to the Lessee any right of support which it now has or may have against Lessee and to the extent that this lease may be considered a conveyance of minerals in place, said right of support is likewise hereby conveyed to Lessee by Lessor. Lessor further releases Lessee from any liability for any damage or injury to the leased premises resulting from his conduct of the activities referred to in paragraph "1" or "3" hereof.

5. Lessee further covenants and agrees that it will assume full responsibility for any and all damages which shall or may in incurred by reason of subsurface subsidences, surface faults or any other surface conditions arising as a result of subsurface mining operations, and failure to protect Lessor from all damages arising therefrom shall be a violation of this agreement, and give Lessor right of reentry as for any other violation thereof.

6 (a) Lessee shall pay the Lessor a royalty of ten percent (10%) of the value of the uranium ore mined from the premises and sold by the Lessee, as determined by the price schedule established on such ore by the Atomic Energy Commission. For the purposes of such royalty payments, "value" shall be deemed to include the base price, plus premium for grade and production bonus which may be granted by the Atomic Energy Commission. It shall not include transportation charges or the development bonus or haulage allowances granted under A.E.C. price schedules.

(b) In the event that minerals referred to in paragraph "1" hereof, other than uranium, are discovered on the premises, the Lessee shall pay the Lessor a royalty of ten percent (10%) of the actual sales price received by the Lessee from such minerals mined and sold from the premises, less transportation charges or allowances.

7. All royalties payable under this agreement shall be paid Lessor, his heirs or assigns, by the twentieth (20th) day of the month next following the month in which sales of uranium are completed through the receipt of the sale price, and royalties paid on other minerals shall be made by the twentieth (20th) day of the month next following the month in which they have been sold.

8 (a) If the Lessee shall fail to pay royalties or taxes herein provided for within a period of ninety (90) days after the same shall have become due, or shall continue to violate substantially any other covenant or condition of this agreement, after 30 days prior written notice of such violation is given by Lessor to Lessee, this said agreement and the estate hereby conveyed shall forthwith cease and determine, and the said Lessor, his heirs or assigns may reenter in and upon the demised premises.

8 (b) The Lessor shall have the right of such reentry as often as the default or breach of any covenant as aforesaid may be so made, either with or without legal process, and if with process, then any attorney of any court may and is hereby authorized to confess judgement in ejectment against the said party, its successor and/pr assigns, without stay of executive or writ or error, and a writ of possession shall forthwith be issuable by the Sheriff to deliver possession of the said premises to the Lessor, his heirs and assigns, and if a copy of this agreement is filed in any action for the recovery of possession as aforesaid, it shall not be necessary to file the original as a warrant of attorney, any law or rule of Court to the contrary notwithstanding. No such determination of this agreement, nor the estate hereby conveyed, nor the taking recovery or possession of the said premises shall deprive the Lessor of any action against the Lessee either at law or in equity. In the event of any dispute between the parties, the provisions of this paragraph shall be subject to the provisions of paragraph "17".

9. Whenever the Lessee shall have determined that all the marketable minerals practicable to mine have been removed from the premises hereby demised and the royalties paid by the Lessee, it shall be relieved from the further covenants hereinbefore contained, and what is left of the premises hereby granted shall revert to the Lessor, his heirs and assigns without formal reentry of its former estate.

10. At the expiration of this lease Lessor will become entitled to all buildings erected by Lessee on the premises. Lessee will have the right to remove within six (6) months following the expiration of the lease all machinery, equipment, fixtures, portable structures and all other property owned by the Lessee and located on the premises, except buildings. The Lessee shall be under no obligation at any time to remove or otherwise dispose of waste, rock and other material which may be placed on the premises as a result of mining, processing and marketing operations of the Lessee in the ordinary course of the business of the Lessee.

11. The Lessor warrants title to the premises and covenants and agrees to defend the title to the premises, and further covenants and agrees that Lessee shall, at all times during the demised term, peaceably and quietly, have, hold and enjoy the premises for all of the purposes in this lease specified.

12 (a) The Lessor hereby warrants and agrees to pay promptly all real estate taxes on the premises or on the interest or estate in the premises herein leased, based upon the present assessed valuation of the property, whether this agreement be construed as a lease or a conveyance or whether said taxes are assessed in the name of the Lessor or the Lessee. Increased real estate taxes resulting from higher assessed valuations attributable to mining operations under this agreement shall be paid by the Lessee.

12 (b) The Lessee at its option may pay and discharge any taxes owed by the Lessor, or mortgages or installments thereof or interest thereon, or other liens existing at any time against the premises, and in the event Lessee exercises such option, it shall be subrogated to the right of any holder or holders of such liens and may, at election of Lessee, reimburse itself by applying to the discharge of such taxes, mortgages or installments thereof or interest thereon, or other liens, any royalties accruing hereunder.

13. Neither this agreement, nor the estate hereby granted, shall be sublet, assigned, conveyed or encumbered by any lien of any kind by the Lessee, either voluntarily or involuntarily by operation of law, whether by execution, insolvency, bankruptcy or otherwise, without the written consent of the Lessor, and no judicial or other sale or transfer of any kind made in pursuance of any order of any court of judicial officer, or otherwise, shall have the effect of transferring any interest or title of the Lessor in this agreement, or the estate hereby granted, to any other person, without such written consent of the Lessor, his heirs or assigns thereto, provided that the Lessee may assign its interest in the within lease to one of its subsidiary corporations without written consent of Lessor.

14. This lease shall run until March 1, 1962 and may thereafter be renewed by Lessee for successive periods of five (5) years each by Lessee giving written notice of renewal to Lessor of such renewal not less than sixty (60) days prior to March 1, 1962 for the first such five-year renewal period, and written notice of renewal to Lessor of each additional five (5) year renewal period not less than sixty (60) days prior to the expiration of the last effective renewal period, provided, however, that Lessee shall have no right to renew said lease unless at the time of such renewal Lessee is actively engaged in one or more of the purposes set forth in paragraph "1" herein, and has substantially performed all its obligations under this lease.

15. Lessor shall have the right to examine through an authorized agent such books and records of Lessee as may be required to determine whether Lessee has paid the proper amount of royalties pursuant to paragraph "6" hereof.

16. In the event at any time, an adverse claim to ownership of any of the premises herein leased in made against Lessor, Lessee shall thereafter deposit any royalties to be paid pursuant to paragraph "6" on uranium or other minerals taken from such part of the premises herein leased as is the subject matter of said adverse claim in a special account in a bank or trust company until such time as such dispute is finally resolved.

17. Any controversy or claim arising out of or related to this agreement, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgement upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof.

18. The Lessee shall assume all risk for injury to persons or property, resulting from or incident to all or any of the operations of the Lessee on the leased premises, or from the exercise or enjoyment of any right or privilege granted under this Lease, and agrees to protect the said Lessor and save him harmless of and from all claims, actions or suits at law or equity or otherwise that may be brought against him or them in consequence thereof, as well as from the payment of all counsel fees and costs of suit which he may incur in connection therewith. Public Liability Insurance shall be carried by Lessee naming Lessee and Lessor as insured as their respective interests may appear and memorandum copies of the policies given to Lessor.

19. This lease shall be binding upon and inure to the benefit of the heirs, legal representatives and assigns of the Lessor and the successors and assigns of the Lessee.

IN WITNESS WHEREOF, the Lessor has set his hand and seal and the Lessee has caused this instrument to be signed by its duly authorized officer and its corporate seal to be affixed the day and year first above written.

(signed) S.F. DRUCKENMILLER (L.S.)

EASTERN URANIUM, INC.

By (signed) HOWARD L. VOLGENAU
President

ATTEST:

(signed) HOMER H. WOODS
Secretary

SCHEDULE A

All that tract of ninety-seven and one-quarter (97 1/4) acres of timberland known as the Stephen Balliet Warrantee Tract situate in the Town of Lehigh, County of Carbon, and Commonwealth of Pennsylvania, as recorded in Deed Book 11 page 106, bounded and described as follows:

> "Beginning at a hemlock thence by land of Joseph Rakestraw N. 61 and 3/4 degrees W. 172 Perches to a post; thence by land of James M. Porter N. 175 and 1/4 Perches to a stone; thence S. 40 degrees E. 32 Perches to a white pine; thence S. 80 degrees E. 25 Perches to a maple tree at the side of the said River Lehigh; thence down the said River Lehigh by the several courses and distances thereof, crossing the mouth of the said Quakeake Creek, about 249 Perches to the place of beginning. Containing 97 and 1/4 acres and the usual allowance of 6% for roads, highways and the others of the said Tract."

Recorded in the Office for the Recording of Deeds in and for Carbon County in Deed Book No. 162 page 713 - July 13th, 1951.

Attachment to Sections 4, 5 and 6 Application for aid in an exploration project by

EASTERN URANIUM, INC.
35 West 53rd Street
New York 19, N.Y.

4. Physical Description

Uranium mineralization was first discovered at Penn Haven Junction, Pennsylvania in 1953 by Mr. Harry Klemic of the U.S.G.S. (see U.S.G.S. Circular 350) while making an examination of Carbon County for uraniferous material. The uranium occurs in sandstone of Upper Devonian Age exposed in a railroad cut about 1/2 mile south of Penn Haven Junction, Pa. The locality is easily accessible by the Lehigh Valley Railroad which has a flag stop at the Junction. A railroad access truck road from Weatherly to the Junction is also available.

At the prospect, a small anticline trending approximately N. 80°W. exposes uraniferous Upper Devonian (Catskill) sandstone on both the east and west banks of the Lehigh River. On the west side, uranium has been found on both limbs of the fold over a total exposed length of 140 feet. On the east bank of the river, uraniferous sandstone has been traced for nearly 250 feet.

It appears that the uranium minerals were concentrated in the general vicinity of the fold axis, hence the maximum dimension of the mineralized ground probably trends general east and west. This is substantiated by the irregular amoeboid pattern of the uranium in the sandstone. These curved patterns appear to be the cross sections of "rolls" similar to the rolls so characteristic of the Salt Wash uranium-vanadium orebodies on the Colorado Plateau. In the Western deposits the maximum elongation of the orebodies is parallel to the axis of the roll, and it is assumed that a similar relation holds in Pennsylvania.

Kasolite, uranophane (?) and trace amounts of galena have been identified at Penn Haven Junction. Six miles to the south, at Jim Thorpe, secondary uranium minerals at the surface disappear beneath the surface and uraninite (?) has been found in their place. It is thought that this will also prevail at Penn Haven Jct.

Several uranium ore deposits are indicated at Penn Haven Jct. and it is desired to explore fully those on the west bank of the Lehigh River by diamond core drilling. This application is submitted to request financial aid to complete drilling this prospect.

Eastern Uranium, Inc. has to date drilled 7 holes at the prospect, totalling approximately 155 feet. Results are summarized in the diagram accompanying this application and in the table following. (Background is about .02 - .03 MR/HR)

Hole No.	Depth	Radioactive Intersections	Magnitude of Radioactivity (by geiger drill hole probe)
1	23 ft.	none	-
1A	25ft.	none	-
* 7	9 ft.	top 6 inches	0.5 - 1.0 MR/HR
11	20 ft.	top 2 feet	.2 - 3.5 "
13	21 ft.	7.5 feet	.15 "
14	36 ft. 6 ins.	11 - 12 feet	.15 - .2 "
		16 - 19 "	.15 - .45 "

* To explore lower stratigraphic beds, hole 7 will be deepened to 35 feet.

To date, this drilling is the only development work done on the property. There has been no production and too little evidence is presently available to permit ore reserve calculations.

From the surface indications and drill data, several ore lenses measuring 4 - 6 ft. thick and 50 - 75 ft. wide are possible. If these can be traced into the hill for 250 feet, each lens would contain, roughly 10,000 tons of ore.

One 3-foot channel sample (PHW-4) assayed chemically 0.37 U_3O_8 and 0.51% U_3O_8 by duplicate analysis. It is understood that the Atomic Energy Commission sampled the entire deposit with very encouraging results, but we do not have these figures to submit with this loan application.

Experienced manpower is readily available in the adjacent towns of Weatherly, Jim Thorpe, Lehighton, etc. This large reservoir of mining personnel is available because of the unemployment in eastern Pennsylvania resulting from inactivity in the anthracite mines. Similarly, mining equipment and supplies are also available locally. The maximum distance to electric power is six miles.

Ample water for drilling can be obtained from the Lehigh River which flows past the property.

5 (b) The proposed project consists of drilling 6,595 linear feet on the hill back of the prospect west of the railroad cut. The purpose is to delineate and sample the uranium "rolls" under Broad Mountain. Vertical holes, arranged in a series of rows at increasing distances from the cut, are proposed. Details of hole locations are given in the accompanying diagram. Hole spacing is closest nearest the cut where depths are the shallowest so that as complete an understanding of the rolls may be had at least expense. It is hoped that this initial closely-spaced drilling will permit projecting the ore trend back into the hill with greater certainty than can now be done. Should this prove possible, the remaining drill hole spacing may warrant some modification as the work progresses.

The hill slope above the railroad cut is steep; estimated as a 60° slope. Some bulldozing will be required to prepare drill sites whenever a large drill is used. Several feet of talus and unconsolidated material blankets the hill slope; hence rock blasting to prepare the sites is not anticipated.

Because the lower 75 feet are so steep, and bold outcrops make access particularly difficult, it is proposed to utilize a portable hand operated gasoline driven diamond core drill for the two rows of holes. The trade name is "Packsack Diamond Drill" manufactured in North Bay, Ontario.

All holes drilled to date have been drilled with this machine and core recovery has averaged better than 90%. Core diameter 7/8". 16 holes will be drilled under terms of this loan with this rig, totalling 675 feet. An estimated 60-70 days will be required.

If the results of this initial drilling are favorable and commercial concentrations of ore are still indicated, a second stage of drilling will be begun using contract AX diamond drills. On the other hand, should the portable hand drill fail to uncover promising mineralized rock, four shallow (30-50ft.) exploratory drill holes, spaced 100 feet apart in the third row back from the cliff may be drilled. Up to this point it will not be necessary to bulldoze any of the drill locations.

During the second stage of the drilling, all drill hole sites will be surveyed in a standard base line and a geologist will record the drill results, log the core, and split the radioactive portions for chemical assay by an independent assayer.

(c) The work will start within 15 work days after granting of the loan and will be completed within one year.

(d) Our drilling crew has had 2 months experience using the new portable "Packsack" drill in the Penn Haven Jct. area and elsewhere. The men are now fully qualified in its operation. The deeper, AX, drilling will be contracted to a qualified drilling company such as Sprague and Henwood, E. J. Longyear, or others.

The technical work of Eastern Uranium is under the guidance and direction of Dr. Thomas N. Walthier and Dr. Brooks F. Ellis.

Dr. Walthier was Staff Geologist for Dr. Phillip L. Merritt, Assistant Director, Division of Raw Materials, Atomic Energy Commission from 1952-54. Previously he was Supervising Geologist for the Iron Ore Company of Canada, Ltd. in which capacity he directed and evaluated a considerable part of the search for iron and manganese deposits in Ungava and Labrador. Dr. Walthier came to the Iron Ore Company from the Labrador Mining and Exploration Company, Ltd. where he had been employed as party chief. Dr. Walthier was also Assistant Professor of Geology at New York University for 5 years and Instructor in Geology at Brown University for 2 years. He was also an officer of the Newfoundland Geological Survey for 4 years.

Dr. Ellis is Chairman of the Department of Geology at New York University and Curator of Micropaleontology at the American Museum of Natural History. He is an active geological consultant both in the U.S. and abroad.

6 (a) Upon successful completion of the first part of the drilling (portable rig) a contract driller will be engaged to complete the project. A maximum of 5,900 linear feet of AX core drilling is planned at an estaimted cost of $4.50 per foot for a total cost of $26,550.00.

To prepare drill sites, a bulldozer and operator will be contracted. Including transit time it is estimated that a maximum of 20 days of bulldozing will be required. At a contract price of $150 per day, total bulldozer plus operator expense is $3,000.00

(b) For the company-owned portable drill, 2 men are needed; an experienced senior driller at $20 per day plus travel expenses of $8 per day, and an assistant, employed locally, at $12.00 per day. Total labor cost amounts to $40.00 per day.

Geologic guidance and direction, proportioned for this work, is $50 per week plus travel expenses of $15 per week.

(c) The following are owned or will be purchased by the company: miscellaneous small tools, gasoline drums, core boxes, gasoline and oil, and Brunton compass. Purchase price and rental fee: $300.

(d) Operating equipment and supplies now owned (*) and to be furnished by Eastern Uranium, Inc., plus those to be purchased, with suggested use-allowance, follows:

Unit	Cost	Use-Allowance
* 1 Packsack diamond drill rig	$1,300)	
* 2 water pumps plus 450 ft. water hose	270)	- $4.50 per foot.
1 water pump plus 300 ft. water hose	250)	
* 1 Geiger counter drill hole probe	250	$1.00 per day
*17 diamond bits and reamers	1,000	$1,000.00
* 1 station wagon	2,400	$8 per day plus 8 ¢ per mile
* 2 scintillation counters	1,000	$2 per day
* Lumber for drill platform	150	$150

(The above use-allowance refers to the number of days to be used, not total days of the loan.)

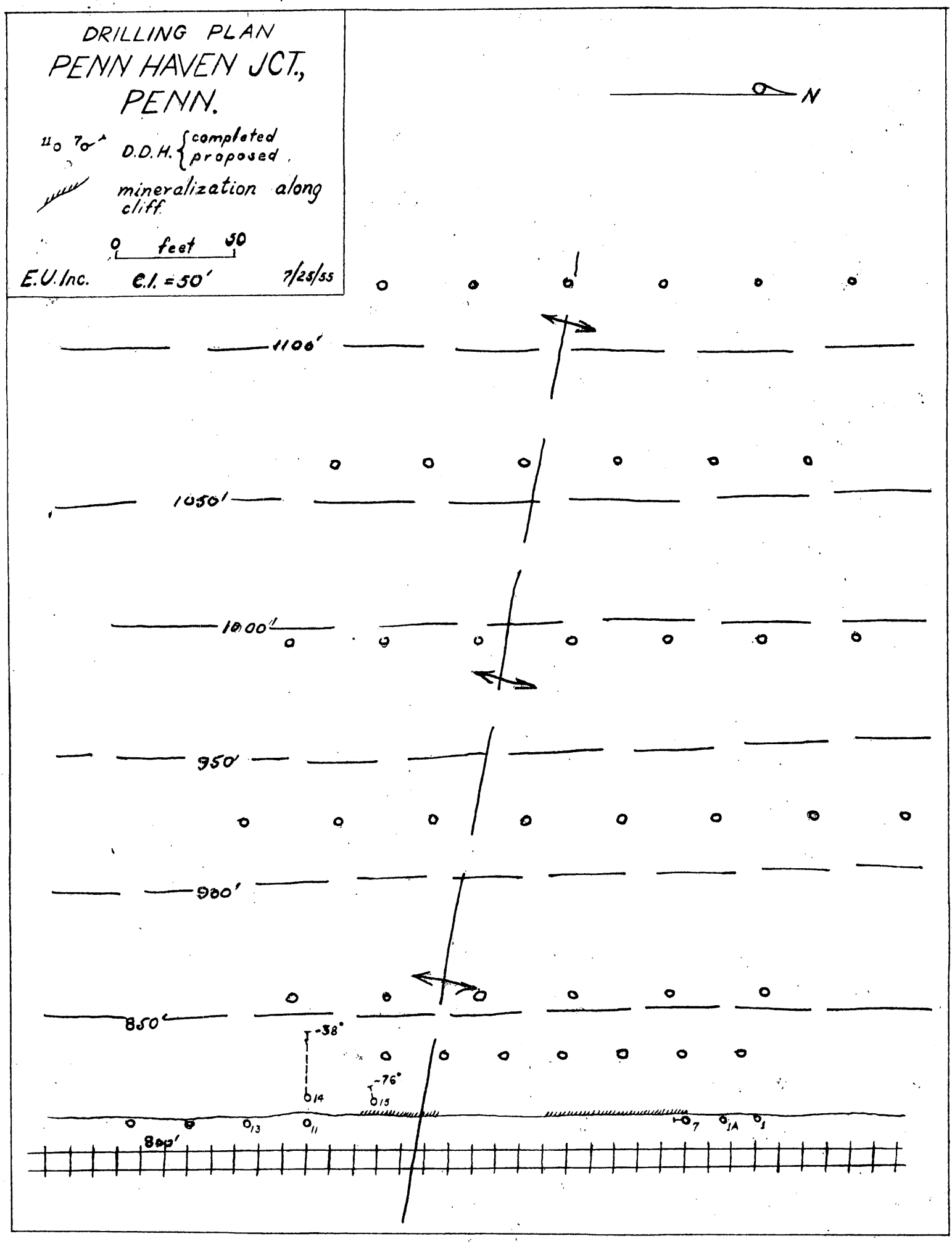
One truck and welding outfit to accompany the company drill rig is now being rented at a rate of $15 per day plus 12¢ per mile mileage.

Summary of Costs - Initial Program

	Item	Cost
I	Portable Drilling Costs 675 feet at $4.50	$3,040.00
II	Truck with welding equipment 60 days @ $15 rental " " 20 miles a day @ 12¢	 900.00 144.00
III	10 Assays @ $10	100.00
IV	Geological direction plus expenses 12 weeks @ $65.00	780.00
V	Use of equipment a) Geiger Counter & Scintillation Counter 36 days @ $2.00	 72.00
	b) Station Wagon 36 days @ $8.00 rental " " 50 miles a day @ 8¢	 288.00 144.00
VI	Miscellaneous Supplies, lumber	500.00
VII	Insurance and payroll taxes	230.00
VIII	Contingencies	300.00
	Total Costs - First Stage	$6,498.00

Summary of Costs - Complete Program

	Item	Cost
I	Total costs - First Stage	$ 6,498.00
II	Contract drill costs 5,900 feet of AX core @ $4.50	26,550.00
III	Contract bulldozing 20 days @ $150.00	3,000.00
IV	Geological direction 38 weeks @ $65.00	2,470.00
V	65 assays @ $10.00	650.00
VI	Surveyor and assistant	500.00
VII	Use of equipment a) Geiger and scintillation counter 150 days @ $2.00	300.00
	b) Station Wagon 120 days @ $8.00	960.00
	" " 50 miles a day @ 8¢	480.00
VIII	Insurance and payroll taxes	694.00
IX	Contingencies - 5%	2,100.00
	Total Cost Complete Program	$44,202.00


DRILLING PLAN
PENN HAVEN JCT.,
PENN.
D.D.H. completed
proposed
mineralization along cliff
0 feet 50
E.U. Inc.
C.I. = 50'
7/25/55
N
1100'
1050'
1000'
950'
900'
850'
800'
-38°
-76°
14
15
13
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7
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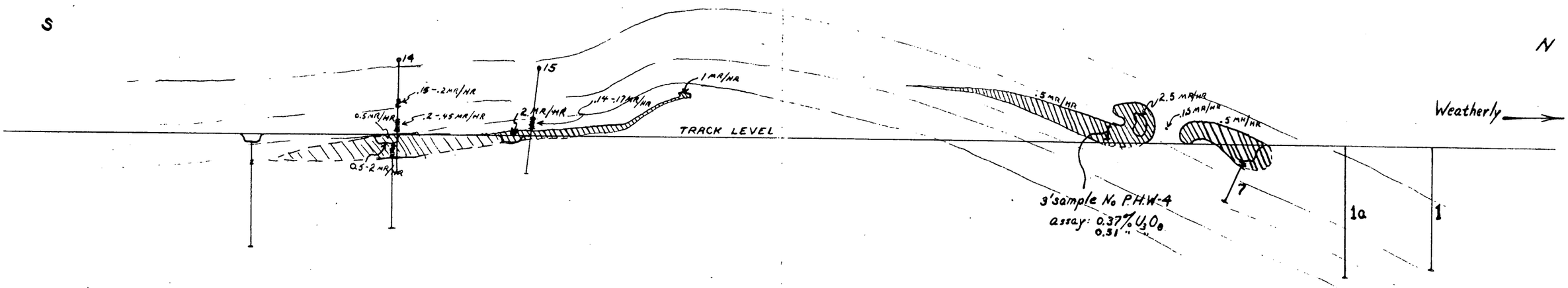

Mineralized Railroad Cut
Penn Haven Junction,
Penn.

0 20 40
feet

Shaded areas are mineralized

RECEIVED
JUL 23 1956

noted 1-24-56 Jzm

EASTERN URANIUM, INC.
Exploration — Mining
35 WEST 53RD STREET
NEW YORK 19, N. Y.
COLUMBUS 5-3772

RECEIVED
JAN 20 1956

January 19, 1956

Mr. C. O. Mittendorf
Defense Minerals Exploration Administration
Interior Building
Washington, D. C.

Re; Docket No. DMEA-3918 (Uranium)

Dear Sir:

Congressman Francis E. Walter informs us that you have consented to review this application at a meeting in your office Tuesday, January 24th at 10 o'clock A. M.

Your courtesy in this regard is very much appreciated, and we shall arrange to meet you at the appointed time and place. Dr. Thomas N. Walthier who is one of our consulting geologists will accompany me.

Very truly yours,

Howard L. Volgenau

Howard L. Volgenau
President

Surname copy

700

Ching
Eliz
Gerhen
Kilsgaard
Selfridge
Johnson

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

DEC 13 1955

Mr. Howard L. Volgenau, President
Eastern Uranium, Inc.
35 West 53rd Street
New York 19, New York

Re: Docket No. DMEA-3918 (Uranium)
Stephen Balliet Warrantee Tract
Carbon County, Pennsylvania

Dear Mr. Volgenau:

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

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

Careful study of all our information, although noting some uranium mineralization on your property, indicates to us that the probability of disclosing minable ore reserves is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied. Such denial, however, is made without prejudice. In the event further work on your part discloses new and more favorable evidence of ore deposition on the property, we shall be pleased to consider a new application.

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

Sincerely yours,

O. C. Fitzenrider
(Terry 57)
Administrator

MChing/gla
12-8-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Ching
DMEA Field Team, Region V (2)

R.C.L.

DOCKET COPY

Ching
Ellis

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

December 8, 1955

SUMMARY OF PROPOSED PROJECT

Object: Denial of application for an exploration project.

Docket No.: DMEA-3918

Commodity: Uranium

Applicant: Eastern Uranium, Inc.
35 West 53rd Street
New York 19, New York

Property: 97-1/4 acres, known as the Stephen Balliet Warrantee Tract, situated in the town of Lehigh, Carbon County, Pennsylvania. Applicant is the Lessee.

Date of Application: July 28, 1955. Supplement by letter dated November 12, 1955.

Amount of Application: $44,202.00

Work Proposed: Core drill in two stages. The first stage consists of 16 holes, totaling 675 feet, to be drilled by Operator with a portable hand-operated gasoline-driven core drill. If results in the first stage are favorable, the second stage, consisting of 5,900 feet (27 holes) of regular diamond drilling, will be contracted out. Holes to be drilled in rows paralleling the face of the railroad cut.

Estimated Costs:

Stage I

Drilling - 675 ft. @ $4.50	$3,040.00	
Supervision, transportation, supplies, etc.	3,458.00	
		$6,498.00

Stage II

Contract drilling, 5,900 ft. @ $4.50	$26,550.00	
Bulldozing, 20 days @ $150.00	3,000.00	
Supervision	2,470.00	
Other expenses and contingencies	5,684.00	
		$37,704.00
Estimated total cost		$44,202.00
Government participation		$33,151.50

Field Team
Report:

November 3, 1955
H. L. Burmeister, USBM
W. P. Williams, USGS

The Catskill sandstone of Devonian age is the uranium-bearing formation on the property. It is exposed in a vertical cut 300 feet long and 30 feet high along the Lehigh Valley Railroad. The exposed area represents a large cross-section of the radioactive formation and it should be fairly representative of conditions that might be found by further exploration. Radioactivity is confined to areas of small dimension which are scattered along the face of the cut. The small lenses and seams represented may run as high as 0.56 percent U_3O_8 but their small size and sporadic occurrence would make mining uneconomical. No practicable guides to ore occurrence such as the presence of carbonaceous material were noted. The mineralization occurs without apparent regard for lithologic characteristics, rock color, bedding, or fracturing. An excellent exposure in two dimensions was examined. No geologic reasons were found for believing that the grade or amount of mineralized rock would increase along the third dimension into the mountain. A high-cost drilling project would probably result in the discovery of a small amount of uranium ore (200 to 600 tons), but such discovery would not add significantly to the Nation's reserves.

The foregoing conclusions are based upon careful inspection and scintillator traverses across the face of the cliff by the examining team, and upon the results of rather comprehensive sampling and testing by Harry Klemic and R. C. Baker, as reported in USGS Circular 350. The radioactivity traverse showed 2.0 MR/Hr or more in two places and .10 MR/Hr or less in four places, with background of 0.01 MR/Hr. Twelve chip samples by Klemic and Baker showed equivalent uranium amounting to 0.23 and 0.25 percent in two places and lessthan 0.04 percent in ten places. The highest result was 0.56 percent from a grab sample taken near the location of the sample registering 0.23 percent.

At least three other localities along the Lehigh River are known where uranium minerals were found. On Mount Pisgah, four miles south of the subject property, uranium is found in the Pottsville formation of Pennsylvania age. About 320 tons of 0.20 percent U_3O_8 ore was mined and stockpiled on this property.

Access to the property can be gained only over the railroad right-of-way and it is believed necessary that the Applicant furnish proof of permission for such access and for work on the slope above the tracks, which may be on the right-of-way, before an exploration project can be seriously considered.

Commodity Group Comments:

Geological Survey - Henry R. Cornwall - November 16, 1955.

The Field Team report indicates that this deposit is not a promising prospect because of the spotty distribution of uranium in the sandstone. The difficulty of access to the property for exploration and mining adds to the unfavorability of the proposed project. A supplement to the original application by H. L. Volgenau is designed to enhance the geologic merits of the proposed exploration and to minimize the problems of access. The memo does not increase the desirability of the exploration from a geologic standpoint, but it does, perhaps, make the problem of access to the property appear slightly less formidable. Agrees with the Field Team recommendation of denial without prejudice.

Bureau of Mines - John E. Crawford - November 30, 1955

Reviewed the report of examination and discussed it with the AEC representative.

The report states that possibly 600 tons of ore could be discovered judging from exposures of uranium in the cliff face.

The objections presented by the field examiners are rather ably answered by the applicant. The examiners state that too little is known about the geology of the area. While this is probably true, the proposed exploration project would make available such geologic data for future use and reference. Inasmuch as the Mauch Chunk deposit yielded over 300 tons of uranium ore, it may be possible, with more geologic data, to find ore bodies of greater magnitude in the Catskill formation. Until such time as more exploration is conducted little will be known of the potentialities of the area. Similarly little was known of the uranium potentialities of the Colorado Plateau in the "early days" until extensive geologic investigations established the uranium industry in the area.

Based on the information available for review, it seems that some form of Federal aid would be justified. The presence of ore-grade material (0.56 percent U_3O_8) and the possibility of finding greater amounts at depth are rather

indications. Exploration programs have been conducted on much less promising areas.

Informal, unofficial information relative to DMEA 3918, gathered through our own efforts, indicate that some exploration work conducted by the applicant on subject property did not have encouraging results. A more comprehensive evaluation could have been made had the Field Team indicated such items in the report, rather than the elaboration on the problems of accessibility and drilling of subject property.

Rare and Miscellaneous Metals Division - Michael Ching
November 29, 1955

The mineralized horizon is well exposed in the railroad cut. Considerable radiometric testing has been done by Klemic and Baker, by the Operator and by the examining team. A dozen chip samples over lengths up to 7 feet were taken by Klemic and Baker and the equivalent uranium content determined. The Operator drilled 7 preliminary core holes, two of which showed no radioactivity. The most promising of the other five holes showed 2 feet of material which registered 0.2 to 3.5 MR/Hr. The results in all cases indicate that the exposed areas of significant mineralization are small and discontinuous. Applicant believes that there is at least a 50-50 chance that such areas will grow larger as they extend into the mountain. Geologically, there appears to be no reason to believe that uniformity and continuity of mineralization will be found within the mountain.

Conclusions and Recommendations:

The proposed exploration is unlikely to discover ore bodies of a size commensurate with the cost of the work. Because mineralization appears to be widespread, though erratic, in the favorable horizon, and the area isnew with respect to exploration for uranium, it is recommended that the application be denied without prejudice to the property.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

FILE COPY
Surname:
Chiping
Libby
Selmage
Lehmann
Mittendorf

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

NOV 30 1955

Mr. Robert A. Lawrence
Executive Officer
DMEA Field Team, Region V
Rm. #13, P. O. Building
Knoxville 2, Tennessee

Re: Docket No. DMEA-3918 (Uranium)
Eastern Uranium, Inc.
Stephen Balliet Warrantee Tract
Carbon County, Pennsylvania

Dear Mr. Lawrence:

This is with reference to your memorandum of November 17, with enclosures, relating to the subject and prospective applications.

The basic criterion in passing upon applications is the geologic probability of making a significant discovery. There is no hard and fast rule for determining what constitutes a significant discovery. If conditions are such that a very small amount of work might expose a 100-ton ore body, such work would be justified. On the other hand, such an ore body would hardly be considered significant if the available information indicates that an extensive and costly program of work would be required to explore it; and there exists very little possibility that the ore body might turn out to be more extensive than indicated or represents only one of a cluster of similar ore bodies in the same vicinity.

In the last analysis, the questions posed by you can only be answered by the judgment and experience of the field examiners and of the Field Team. The basic principles of strength, continuity, favorable environment, etc., of mineralization and structural control govern a decision and are interpreted from the facts obtained in each case. If sufficient information is not available for making a decision, then the applicant should be required to obtain additional information by doing further work on the property before further consideration is given to his application. In any case, the applicant should be expected to do sufficient preliminary work to establish basic data and exploration targets. Such information furnished by the applicant, together with the information secured by the field examiners from other sources and by examination of the property should enable the Field Team to make a sound decision based upon its training and experience and the use of common sense and good judgment in sorting out facts and reaching conclusions.

R.G.L.

We regret that we are unable to give you something more tangible as a measure for reaching a decision. However, each case must be decided on its own merits. Your recommendations should represent your best judgment at the time given, based upon the information available.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GHB)

APPROVED:

/s/ Robert W. Geehan (GHB)

Member, Bureau of Mines

Thor H. Kiilsgaard (GHB)

Member, Geological Survey

MChing:FEJohnson/izm
11-29-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Code 700
Mr. Ching
MESSRS. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

12-1-55 [illegible]

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

RECEIVED
DEC - 1 1955

November 30, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

From: John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee

Subject: Field Team Report of Examination and Supplemental Information, DMEA Docket 3918, Eastern Uranium, Inc., Stepahn Balliet Warrantee Tract, Carbon County, Pennsylvania

I have reviewed the report of examination and the supplemental information of Eastern Uranium, Inc., DMEA Docket 3918, dated November 4 and 12, respectively, and received in this office November 10 and 18. I have also discussed them with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Field Team examined the subject property on August 26 and 27, 1955, and noted that the presence of uranium minerals on this property is definitely established. Chemical and radiometric assays of samples taken from the property show that the grade of small, scattered lenses and seams in the Catskill sandstone may be as high as 0.56 percent uranium. The Field Team, however, recommends denial of the application because of the relatively high cost as compared to the size of the potential discovery and because of uncertainties about access.

The report states that possibly 600 tons of ore could be discovered judging from exposures of uranium in the cliff face.

The objections presented by the field examiners are rather ably answered by the applicant. The examiners state that too little is known about the geology of the area. While this is probably true, the proposed exploration project would make available such geologic data for future use and reference. Inasmuch as the Mauch Chunk deposit yielded over 300 tons of uranium ore, it may be possible, with more geologic data, to find ore bodies of greater magnitude in the Catskill formation. Until such time as more exploration is conducted little will be known of the potentialities of the area. Similarly little was known of the uranium potentialities of the Colorado Plateau in the "early days" until extensive geologic investigations established the uranium industry in the area.

Based on the information available for review, it seems that some form of Federal aid would be justified. The presence of ore-grade material (0.56 percent U_3O_8) and the possibility of finding greater amounts at depth are rather encouraging indications. Exploration programs have been conducted on much less promising areas.

Informal, unofficial information relative to DMEA 3918, gathered through our own efforts, indicate that some exploration work conducted by the applicant on subject property did not have encouraging results. A more comprehensive evaluation could have been made had the Field Team indicated such items in the report, rather than the elaboration on the problems of accessibility and drilling of subject property.

In accordance with the routing slip thereto attached, the report and supplemental information are being forwarded to the Chief, Division of Minerals.

John E. Crawford

John E. Crawford

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

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Subject: Field Team Report of Examination and Supplemental Information, DMEA Docket 3918, Eastern Uranium, Inc., Stepahn Ballict Warrantee Tract, Carbon County, Pennsylvania

I have reviewed the report of examination and the supplemental information of Eastern Uranium, Inc., DMEA Docket 3918, dated November 4 and 12, respectively, and received in this office November 10 and 18. I have also discussed them with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Field Team examined the subject property on August 26 and 27, 1955, and noted that the presence of uranium minerals on this property is definitely established. Chemical and radiometric assays of samples taken from the property show that the grade of small, scattered lenses and seams in the Catskill sandstone may be as high as 0.56 percent uranium. The Field Team, however, recommends denial of the application because of the relatively high cost as compared to the size of the potential discovery and because of uncertainties about access.

The report states that possibly 600 tons of ore could be discovered judging from exposures of uranium in the cliff face.

The objections presented by the field examiners are rather ably answered by the applicant. The examiners state that too little is known about the geology of the area. While this is probably true, the proposed exploration project would make available such geologic data for future use and reference. Inasmuch as the Mauch Chunk deposit yielded over 300 tons of uranium ore, it may be possible, with more geologic data, to find ore bodies of greater magnitude in the Catskill formation. Until such time as more exploration is conduted little will be known of the potentialities of the area. Similarly little was known of the uranium potentialities of the Colorado Plateau in the "early days" until extensive geologic investigations established the uranium industry in the area.

Based on the information available for review, it seems that some form of Federal aid would be justified. The presence of ore-grade material (0.56 percent U_3O_8) and the possibility of finding greater amounts at depth are rather encouraging indications. Exploration programs have been conducted on much less promising areas.

Informal, unofficial information relative to DMEA 3918, gathered through our own efforts, indicate that some exploration work conducted by the applicant on subject property did not have encouraging results. A more comprehensive evaluation could have been made had the Field Team indicated such items in the report, rather than the elaboration on the problems of accessibility and drilling of subject property.

In accordance with the routing slip thereto attached, the report and supplemental information are being forwarded to the Chief, Division of Minerals.

John E. Crawford

~~NOV 1 2 1955~~
11-21-55 sgm

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
NOV 21 1955

November 17, 1955

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville

Subject: DMEA-3918 (uranium) Eastern Uranium, Inc., New York, N. Y.
Stephen Balliet Warrantee Tract, Carbon County, Penna.

Enclosed are 2 copies of a memorandum from the applicant, received here today.

Decision on this appears to require a statement of policy and we are very much interested to know how such applications will be handled. We will soon have to make recommendations on one or more uranium applications from North Carolina and Tennessee, in which geologic controls are not well known, and orebodies (if any) are likely to be small. Do we go along with exploration in such areas in the hope of brinning in a new district, or do we require the applicants to first do enough work to establish the geologic controls and indicate the probable size of the orebodies?

In the subject proposal, the field examiners agree that orebodies of 300 to 500 tons may be expected in this area. The question seem to be, would discovery of such orebodies be "Significant"?

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA, Region V

V. J. Lynch
V. J. Lynch, Member
U. S. Bureau of Mines

Fi

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D.C.
ROOM 087 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

November 17, 1955

RECEIVED
NOV 21 1955

Memorandum

To: Operating Committee, DMEA - Washington

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Robert A. Laurence
Executive Officer, DMEA, Region V

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V. J. Lynch, Member
U. S. Bureau of Mines

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED NOV 21 1955

November 17, 1955

Mr. Harold Volgenau
Eastern Uranium, Inc.
35 West 53rd St.
New York 19, N. Y.

Re: DMEA-3918 (uranium)
Stephen Ballist Warantee Tract
Carbon County, Penna.

Dear Mr. Volgenau:

Your letter of November 12, and memorandum dispensing various aspects of your application have been reviewed here, and forwarded to our Washington office. Final authority for approval or denial of applications rests with our Washington staff, and you will be advised by them when a decision has been reached.

Very truly yours,

Robert A. Laurence
Executive Officer, DMEA
Field Team, Region V
Room 13, Post Office Bldg.

RAL/nm
cc:
Opr. Com.
Lynch

Miller
Files

11-17-55

IN REPLY REFER TO:

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

RECEIVED
NOV 16 1955

November 16, 1955

Memorandum

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

From: H. R. Cornwall, U. S. Geological Survey

Subject: Review of Field Team Report, DMEA 3918 (uranium), Eastern Uranium, Inc., New York, N. Y., Stephan Balliet Warrantee Tract, Carbon County, Pennsylvania.

The examination of the Field Team indicates that this uranium deposit is not a promising prospect because of the spotty distribution of uranium in the sandstone. The difficulty of access to the property for exploration and mining adds to the unfavorability of the proposed project.

A supplement to the original application was transmitted to E. W. Ellis of DMEA on November 12, 1955, by H. L. Volgenau, President of Eastern Uranium, Inc. This memorandum presents arguments designed to enhance the geologic merits of the proposed exploration, and to minimize the problems of access discussed in the Field Team report. In my opinion the memo does not increase the desirability of the exploration from a geologic standpoint, but it does perhaps make the problem of access to the property appear slightly less formidable.

I agree with the Field Team recommendation that this application for DMEA assistance be denied without prejudice.

Henry R. Cornwall

Henry R. Cornwall

IN REPLY REFER TO:

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

RECEIVED
NOV 16 1955

November 16, 1955

Memorandum

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

From: H. R. Cornwall, U. S. Geological Survey

Subject: Review of Field Team Report, DMEA 3916 (uranium), Eastern Uranium, Inc., New York, N. Y., Stephen Balliet Warrantee Tract, Carbon County, Pennsylvania.

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I agree with the Field Team recommendation that this application for DMEA assistance be denied without prejudice.

Henry R. Cornwall

HRCornwall:iml
G-11/16/55
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Hosted, 3210

IN REPLY REFER TO:

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

RECEIVED
NOV 16 1955

November 16, 1955

Memorandum

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

From: H. R. Cornwall, U. S. Geological Survey

Subject: Review of Field Team Report, DMEA 3918 (uranium), Eastern Uranium, Inc., New York, N. Y., Stephan Balliet Warrantee Tract, Carbon County, Pennsylvania.

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Henry R. Cornwall

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G-11/16/55
cc: Director's reading, 4212
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DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Hosted, 3210

EASTERN URANIUM, INC.
Exploration — Mining
38 WEST 53RD STREET
NEW YORK 19, N. Y.
COLUMBUS 5-0770

November 12, 1955

RECEIVED
NOV 17 1955
Knoxville Tenn.

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Knoxville 2, Tennessee

Re: DMEA - 3198 (uranium)

Dear Mr. Laurence:

In Washington last week, I had an opportunity to discuss this application with Messrs. Ernest Ellis, Michael Ching and William P. Williams. Naturally, we were disturbed over what they had to say about it.

As a consequence, we have prepared this memorandum in the hope that it will help to clarify the questions which they have raised. I'm sending the original to you as I was told that the application is now in your hands.

Tom. Walthier, as our chief consultant, supplied the geological data, and he concurs in principle with the memorandum as a whole.

Sincerely yours,

Howard L. Volgenau

Howard L. Volgenau
President

D.M.E.A. Docket No. ~~3198~~ 3918 (Uranium)

Memorandum on certain technical and practical questions involved in an application for financial assistance by Eastern Uranium, Inc. to explore a uranium prospect near Penn Haven Junction, Pennsylvania.

Approval of this application, it is reported, has been jeopardized by reason of certain technical and practical objections which have been raised by the U. S. Geological Survey and the Bureau of Mines. This memorandum presents new fact and opinion bearing directly on the points in question which we would like to have considered as a part of the application.

I. The technical questions relate to the geology of the prospect. It is our understanding that the following specific objections have been advanced, presumably to support a contention that the prospect is too risky to be explored with public funds.

Objection - The geology of the area is new insofar as uranium exploration is concerned; too little is known about it; Eastern is pioneering and should develop more information with its own resources.

Answer - In terms of uranium exploration this area is not new. The earliest discovery of uranium in this country was made near Mauch Chunk (Jim Thorpe) six miles south of the prospect. This deposit appears in a geological formation (Catskill) similar to that of the prospect.

This year the Lehigh Coal & Navigation Co. explored other deposits near Mauch Chunk in what is known as Mt. Pisgah. The results of this exploration are undoubtedly known to U.S.G.S. and the Bureau of Mines. In 1953, the prospect and the adjacent area was made the subject of a competent study by Harry Klemic, U.S. Geological Survey (Circular #350). Prospecting done by Eastern Uranium, Inc. during the past eight months not only confirms the findings of this study, but it has greatly increased our knowledge of the number and extent of radioactive occurrences which exist in the area.

Apparently, this information is contrary to the prevailing opinion of the area, possibly due to the fact that other prospectors have found exploration too difficult by ordinary methods because of the rough terrain and the heavy vegetation.

The surveys made by Eastern have employed the usual radiometric and sampling methods. In addition, Eastern has perfected a geochemical technique, new as applied to uranium exploration, which has been remarkably effective. By these methods substantial evidence has been gathered of the existence of ore deposits in five locations on both sides of the Lehigh River north and south of the prospect which is the subject of this application.

Thus, it appears that exploration of the prospect would aid greatly in evaluating a sizeable area showing great promise.

Further exploration, except by drilling, would not be feasible in view of the work which has been done, and diamond core drilling is the course proposed in the pending application.

It may be said generally that there are many similarities between the occurrences at Penn Haven Junction and those on the Colorado Plateau. The similarities which, in our opinion, are deserving of the most careful consideration are:

1. The uranium occurs in fluviatile sandstones.

2. They are associated with a plateau composed of thick sequences of flat-lying sediments.

3. Faults are spatially associated with the uranium minerals. Eastern's geologists find a consistent relation at Penn Haven Junction between sheer zones, faults and uranium. Likewise almost all the ore on the Colorado Plateau, including ore produced thusfar and in the known reserves, lies close to or along the faults bordering the salt valley anticlines.

4. A prevalent theory is that uranium concentrations on the Colorado Plateau are associated with anticlines. The occurrences at Penn Haven Junction are at the crest of an anticline.

   Just across the Lehigh River is an outcrop where carnotite impregnates the sandstone in roll structure for more than 250 feet on the same anticline as the prospect. Not only are the occurrences on the same anticline, but the several sedimentary structures found to date indicate that the ancient streams that formed the host rock flowed parallel to what is now the axis of the fold.

   It is well-substantiated on the Colorado Plateau that the uranium ore bodies are elongated parallel to the direction of the ancient stream beds. Similarly at Penn Haven Junction the uranium is concentrated along the axis of the fold.

Despite these similarities, it is conceded that all of the many criteria used in prospecting on the Colorado Plateau have not as yet been observed in Pennsylvania.

The Western criteria have been formulated from a great mass of data resulting from thousands of man hours of field work and millions of feet of diamond core drilling. But the absence of some of these criteria in the case of the Penn Haven Junction prospect should not in itself be a reason for rejecting the application.

If that were the rule exploration by the government in the West would have been seriously hampered. Obviously, all western deposits are not identical. The Happy Jack mine bears little resemblance to the Cougar Mine or the Rattlesnake group. These three differ from the MiVida deposit and from Temple Mountain. The concretionary masses at Pumpkin Buttes, Wyoming, show still other features, and the newly discovered large ore bodies associated with the lignites of South Dakota are a new variation of the western types.

Granting that there are many variations to the basic association of uranium in sandstone, as shown by western experience, it is only to be expected that the deposits at Penn Haven Junction should not be identical to the deposits on the Colorado Plateau. In our opinion, however, these deposits are similar to the Salt Wash deposits at Uravan, Colorado, and in important particulars to other western deposits, and it is in these similarities that our reliance can be confidently placed.

<u>Objection</u> - It is said that delineation of the ore bodies is difficult because of their "spotty" character, and the absence of ore guides such as mudstones and carbonaceous material found usually in connection with deposits on the Colorado Plateau.

<u>Answer</u> - To characterize the Penn Haven Junction deposits as "spotty" is gratuitous. It is true that there are a number of relatively small occurrences in the face of the cliff which, incidentally, give readings as high as 4 MR/PR, but the main bodies extend 140 feet along the face of the cliff and vary in thickness from two to six feet.

It may not be correct to say that there is a total absence of ore guides. The Mt. Pizgah prospect of the Lehigh Coal & Navigation Co. shows uranium associated with carbonaceous material. A similar relation has been observed on the Marie Owen tract adjacent to the prospect to the south which was recently purchased by the lessor, Dr. S.F. Druckenmiller, and made subject to the lease held by Eastern.

Further exploration by drilling which is the purpose of the application may disclose ore guides just as it did in the west where they were not obvious in the beginning.

Objection - It is said that there is not reason geologically to suppose that the ore bodies, visible in the face of the cliff, will improve as they extend into the cliff.

Answer - Apparently, it is agreed that elongation of the ore bodies will cause them to extend into the cliff, and this is indicated by the drilling which has already been done. If one could determine solely by geological evidence whether or not such ore bodies increased or decreased in size as they extended underground, there would be little or no use for diamond core drilling.

Nevertheless, it should be noted that it is the vertical plane of the ore bodies which is exposed in the face of the cliff, and that they are irregular in shape. As they extend into the cliff on a horizontal plane it is most likely that they will continue to be irregular in shape; that is, that they will grow larger or smaller. Drilling similar deposits in the west shows this to be the case. And the purpose of the drilling program proposed in this application is to discover if these irregularly shaped ore bodies actually pinch or swell.

Opening a Shaft - It has been suggested that Eastern explore the prospect further by opening a shaft in the face of the cliff and "following the ore." If this is a formal recommendation, we cannot fail to regard it seriously, and we would be willing to accept it provided the necessary financial assistance were granted by D.M.E.A.

Our considered opinion, however, is that a shaft would not prove as much as the proposed drilling program. For the same amount of money, only a relatively small part of the prospect could be explored because of the high cost of a shaft per linear foot. Drilling on the hole spacing proposed in the application would be less likely to miss significant ore deposits.

It is possible that the ore may pinch off completely to reappear deeper in the cliff. Exploring by means of a shaft, rather than by drilling, might result in a premature abandonment of the prospect. For this reason, Stage II of the drilling program is considered as critical as Stage I.

II. The practical questions which have been raised in connection with this application relate to the means of access to the project, and the convenience and safety of drilling it.

The prospect can only be reached on foot by crossing the right-of-way of the main line of the Lehigh Valley Railroad. There is not cross-over for vehicles, although one could be provided. It has been suggested that written permission be obtained to trespass on railroad property before attempting the drilling program.

The right of trespass has been enjoyed by Eastern for the past eight months. This applies not only to the right-of-way adjacent to the prospect, but also to the use of the road from Waverly to Penn Haven Junction. Eastern representatives individually have granted the right of trespass by signing waivers, and it is understood that employees of contract drillers and others will be granted similar privileges in the same manner.

It should be noted also that the lessor, Dr. S.F. Druckenmiller, holds title to the property which is the right-of-way of the railroad. The Lehigh Valley legally has the use of the right-of-way only by right of adverse possession.

If heavy equipment or supplies had to be moved to the site, no question of trespass would be involved. Requests would be placed with the operating department of the railroad for transportation facilities which would be provided at customary rates.

In the bids submitted in connection with this application by contract drillers they state that such arrangements had already been made with the Lehigh with respect to their requirements.

The Lehigh Valley Railroad has been completely cooperative. Tentative [illegible] already been reached for the installation of a siding along the cliff whenever it may be required. The railroad is eager to have the benefits of any tonnag[illegible] developped from the prospect.

The railroad has shown no concern over possible interruption of traffic because of landslides or damage to telegraph wires which run along the edge of the cliff. These reasons may be cited:

1. No rock slides have been experienced in this immediate area during the torrential rains of recent years.

2. Loose rock on the upper slope is largely talus with few boulders.

3. The slope is heavily wooded with small to medium sized trees and dense thickets and underbrush. This growth is thickest along the lower benches of the cliff where it would be likely to catch and hold slides of loose material from the upper slope.

Eastern recognizes its responsibility for maintaining ready access to the prospect, and reasonably safe conditions for employees and the railroad. It is prepared to do whatever may be necessary to discharge this responsibility especially if it might have a bearing on the approval of the application. On the other hand, it seems needless to require written permissions from the railroad, which the railroad itself does not consider necessary, as a condition precedent to approval of the application.

There may have been other objections, technical or practical, raised to this application of which we are not aware. If so, we would appreciate an opportunity to attempt to answer them.

We are convinced, however, that this application can be approved on its merits without further delay. In fact, it would, in our opinion, be against the interest of the government to reject it.

If the purpose of D.M.E.A. is to aid in proving existing reserves of strategic materials, this purpose can be carried out at Penn Haven Junction. For to prove this prospect is to take the first step in proving what is potentially a new uranium province.

On its own initiative and with its own resources, Eastern has opened up

this possibility by intensively prospecting an area which heretofore has been shunned. It has done the most critical drilling of the prospect to substantiate the geological evidence at hand. It is prepared to sustain an out-of-pocket loss in drilling Stage I while assuming its share of the cost of carrying out the entire exploration program proposed.

With due regard to the risks inherent in a project of this kind, we must conclude that it offers exceptional public benefits in return for a justifiable use of public funds. We sincerely trust this application will be approved promptly.

11/15/55 gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON, TENNESSEE~~
KNOXVILLE, TENNESSEE

November 4, 1955

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville

Subject: Field Examination Report, DMEA-3918 (uranium)
Eastern Uranium, Inc., New York, N.Y.
Stephan Balliet Warrantee Tract, Carbon County, Penna.

Enclosed are four copies of the subject examination report.

Because of the relatively high cost as compared to the size of the potential discovery, and because of the uncertainties about access, we agree with the examiners' conclusions and recommend that it be denied without prejudice. Re-consideration of a new application should be made only after applicants show proof of authorized access routes and geologic probability of a better target than is suggested by the present exposures.

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA
Field Team, Region V

Reviewed by
DMEA OPERATING COMMITTEE
11/14/55
(date)

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

Field Team Report on Examination of Property

by

H. L. Burmeister and W. P. Williams[1/]

Reviewed by DMEA Engineering Comm. 11/14/55

DMEA Docket 3918 (Uranium)
Applicant: Eastern Uranium, Inc.
35 West 53rd St. New York 19,N.Y.
Property: Stephan Balliet Warrantee Tract,
Town of Lehigh, Carbon County,Pa.

- Summary -

This property was examined by the Field Team representatives on August 26 and 27, 1955. The examiners were accompanied by Mr.Howard L.Volgenau, president of Eastern Uranium Inc. and geologists Harry Klemic, John Eric and Alfred R. Taylor of the Geological Survey. Representatives of Hoffman Brothers Drilling Co. and Sprague & Henwood, Inc. were on the property the first day of examination. Two full days were spent in the field.

The presence ofuranium minerals on this property is definitely established. Chemical and radiometric assays of samples taken from the property show that the grade of small, scattered lenses and seams in the Catskill sandstone may be as high as 0.56 percent uranium.

The area was explored for miles in an effort to find an access route for drilling equipment. The only one found led from the railroad tracks up a 55° slope between a 4-foot opening in the cliffs.

The entire drilling area is on a consistent 45° upward slope from the top of the 30' high railway cut. The slope is covered with medium to large size loose slabs of trap rock which make the use of a bulldozer impossible for making cross area trails for the drill or excavating for setups. Labor must be used for this work to ensure that no falling rock breaks the telegraph lines below or lodges on the railway tracks. Very few trees in the drilling area are of sufficient size to be used as anchors for pulling the drills up the slope. These conditions are largely responsible for the high drilling costs submitted.

1/ H.L. Burmeister, engineer, Bureau of Mines, and
W. P. Williams, geologist, Geological Survey

Due to the fact that access can at present be gained only over the railroad rights of way, it is believed necessary that the applicant furnish proof of permission to pass with equipment and also to do exploration and mining work on the slope above the tracks which may be on the right of way. No such permission has been forwarded by the applicant since being requested by the engineer.

The exposure examined for the presence of radioactive minerals consists of sandstone which forms the nearly vertical face of a railway cut. The face is approximately 360 feet long and averages 30 feet high. Basic section, Fig. 3, is an enlargement of the area examined as it appears in U.S.G.S. Circular 350 by Harry Klemic and R. C. Baker. To this section has been added the data contained in the application and that obtained by the geologist during the examination. A revised drilling program (Fig. 2) and cost data are included for possible future reference.

Radioactivity is confined in the exposures examined to areas of small dimension both vertically and longitudinally along the face of the rock cut. These areas are scattered and no economic method of mining could be applied to a deposit as characterized by the exposures examined. It is estimated that a 5' x 7' tunnel driven into the rock face on the area of greatest radioactivity would result in a dilution of approximately 5 to 1. Sorting would have to be done with the aid of instruments as the radioactive rock and the barren host rock appear the same visually. Measurements of radioactivity were made and samples were cut and analyzed by both the Geological Survey and the applicant. The results obtained and plotted on Figure 3 reveal the spotty nature of the deposit and also the large discrepancies in results.

- Conclusions -

The area examined comprises a large cross-section of the formation in which radioactivity occurs and should be a fair representation of conditions which might be found by further exploration. Where uranium mineralization occurs in the area examined, the values are not high enough or the volume large enough to support the dilution necessary in the smallest practical mine working. Continued permission of access by presently known routes for the purposes of exploration or mining is not satisfactorily established. Actual ownership of the land for a distance of 200 feet west from the centerline of the railroad tracks is considered to be unclear.

No practicable guides to ore have been established, and controlling factors with regard to location and position of ore are unknown. A high-cost drilling project would probably result in the discovery of a small amount of uranium ore, but the examining team does not believe that such a project would succeed in adding significant reserves to the supply of uranium ore.

- Recommendations -

Because of the sporadic distribution of mineralized rock on the property, and because of unsolved property access problems, the examining team recommends that the application for DMEA assistance be denied without prejudice. If the applicant provides access for heavy equipment to the property, and if additional work by the applicant shows that the ore occurs in such a pattern or in such a zone as to constitute a definite exploration objective, then a new or revised application should be seriously considered.

The application was discussed with Mr. Jack Kratchman of the U.S. Atomic Energy Commission for the purpose of evaluating the property.

Name and Location of Property

The property consists of 97¼ acres of timberland and is known as the Stephen Balliet Warrantee Tract, situated in the Town of Lehigh, Carbon County, Pa., approximately four miles east of the village of Weatherly, "A" Fig. 1. The drilling area is about one-quarter mile south of Penn Haven Junction, "B" Fig. 1.

Access

The closest public road is about 4½ miles distant from the exploration area. The only vehicular approach to the area at present is to obtain permission locally from the Lehigh Valley R.R. to pass a locked chain gate giving access to the railroad right of way between Weatherly and Penn Haven Junction. Double tracks previously occupied this right of way but one track was removed and its place taken by a railroad-owned vehicular road. Many trains still use the reamining track. Upon arrival at Penn Haven Junction, park the car and walk southeasterly about one-quarter mile on the three-track main line roadbed used jointly by the Lehigh Valley R.R. and the Central Railroad of New Jersey. The uranium mineralization occurs near the first signal semaphore encountered. (Fig.2)

The only other remotely feasible method of access to the drilling area could be gained by obtaining permission to cross a large State Game Preserve and dulldozing a road for about four miles through heavy brush to the hilltop above the drilling site. If this approach was used, equipment would have to be secured with cables and skidded down the consistent 45° incline of the drilling area which is covered with loose, flat and sliding trap rock.

Competency of Applicant and Operating Personnel

Mr. Howard L. Volgenau states that Eastern Uranium, Inc. is exploring for uranium in several other localities. The location of these explorations

was not made known to the engineer. A geologist is an officer of the company.

The drilling program was poorly laid out, the costs excessive and apparently no plans had been made concerning access of equipment or movement of equipment over the drilling area. The financial responsibility of the applicant company was not investigated.

Applicant's Property Rights

The applicant holds this land under lease from the owner, Dr. S.F. Druckenmiller, Lansford, Pa. The lease dated April 30, 1955, provides that mining operations must begin within three years. If active mining is started within three years, the lease will continue to be in effect until March 1, 1962. Renewal of lease may be made in successive five-year periods.

A copy of the reoord of Dr. Druckenmiller's land is attached to the lease and is a part of the application. It is believed that the following points are important in considering this application: This land was formerly owned by the Lehigh Valley R.R. and was then sold for delinquent taxes to Dr. Druckenmiller. When in possession of the railroad the right of way along the Lehigh river was on railway property and was probably not mentioned in their deed. It is noted that the description of Dr. Druckenmiller's tax purchase gives ownership to the Lehigh river and does not mention the presence of the railroad right of way along the river, or of the one connecting Penn Haven Junction and Weatherly. (Fig. 2)

As previously stated, the road occupying a portion of the railroad roadbed between Weatherly and Penn Haven Uunction is a private one with access only through a locked chain gate. Use of this road for the four miles necessary can probably be denied at any time. The uranium mineralization outcrops in the vertical wall of the railroad right-of-way cut. To reach the drilling area it

is necessary to actually traverse the rails of the track from Penn Haven Junction because of the location of switching devices between the tracks and the cut wall, which extends the entire distance. The advisability and probable necessity of procuring written permission from the railroad for continued passage was brought to the attention of Mr. Volgenau a number of times during the examination. Several communications have been received from him but no mention has been made of this matter. Mr. Volgenau told the engineer that in his belief the railway right of way in this general locality extends 200' on each side of the center of tracks. If this is correct the right of way would include all the proposed holes in Stage I and 13 holes in Stage II. (Fig. 2)

Description of Property

The entire area of leased property lies on a ridge trending east and west. The ridge slopes both northward and southward at steep angles, to creeks emptying into the Lehigh river. The drilling area lies on the eastern end of the ridge which slopes downward a consistent 45° to the top of the vertical 30-foot railway cut in which the uranium mineralization is found. Telegraph lines clear the top of the railroad cut by about eight feet. (Fig. 2)

There are no mine workings on this property. Exploration at present consists of seven very shallow diamond core holes drilled by the applicant and shown on Figs. 2 and 3. There are no facilities or equipment on the property and no production has been made.

Geology and Ore Deposits

A good geologic description of the uranium occurrences at Penn Haven Junction and other points in Carbon County, Pennsylvania, is presented in U.S.Geological Circular 350 by H. Klemic and R. C. Baker[2/].

The Eastern Uranium Company property is located on the west bank of the Lehigh River and on the north flank of Broad Mountain anticline. The following stratigraphic section is found along the Lehigh River in the vicinity of the property:

	Feet
Pennsylvanian:	
Productive coal measures	975
Pottsville conglomerate	880
Mississippian:	
Mauch Chunk shale	2,170
Pocono gray sandstone	1,255
Devonian:	
Catskill red sands and shales	7,145
Chemung and Portage shales and flags	1,290
Genesee shale	290
Hamilton shale	760
Marcellus shale	800
Oriskany sandstone	340
Helderberg limestone, lower part	295
Silurian:	
Onondaga and Clinton red and gray shale and marl	2,000
Tuscarora sandstone	665
Oneida conglomerate	460
	19,325

The Catskill formation of Devonian age is exposed on the property in a vertical cliff in a cut along the Lehigh Valley Railroad.

2/ Klemic, H., and Baker, R. C., Occurrences of Uranium in Carbon County, Pennsylvania, U.S.Geological Survey Circular 350, 1954

The cliff is about 300 feet long and about 30 feet high. The Catskill formation in the cliff is a massive, greenish-black to green-gray sandstone interbedded with thin, shaly sandstone and graywacke. Weathered parts of the outcrop may be black--probably due in part to manganese oxide stain.

The Catskill sandstone at Penn Haven Junction is composed mostly of quartz, feldspar, and mica in a chloritic matrix. When viewed under low power magnification the sandstone shows trace amounts of pyrite and galena as small, widely scattered interstitial grains. Limonitic discoloration is common along fractures in the sandstone.

The uranium may be present as a black mineral that may be seen with magnification, in selected specimens, scattered through the sandstone. An X-ray study by the AEC tentatively identifies the black mineral as uraninite. On partly weathered surfaces, such as fractures and bedding planes, yellow and orange-yellow uranium oxides may rarely be found. The oxides appear to be carnotite and gummite. Kasolite, $Pb(UO_2)SiO_4.H_2O$, and uranophane, $Ca(UO_2)_2\ Si_2O_7.6H_2O$ have, however, been positively identified at Penn Haven Junction by others 3/

Figure 3 shows the outcrop, in section, of the uranium-bearing sandstone. The rocks are folded into a small anticline which is superimposed, with axes roughly parallel, on the main Broad Mountain anticline. The uranium minerals appear to be localized along the small Penn Haven anticline. The small anticline extends across the Lehigh River about 500 feet to the east where the fold may be seen again. Uranium minerals are also present across the river but in smaller amounts.

3/ Mineral Identification by A. D. Weeks, D. D.Riska, and B. R. Thompson, Chemical compositions from Frondel and Fleischer. U.S.G.S. 1952

The sandstone is not mineralized throughout. Instead, after traversing the cliff with scintillometer and marking the mineralized areas with chalk, it is noted that the mineralized areas are very irregularly shaped. The thickness of the mineralized rock is generally only a few inches, and the mineralized rock pinches out within a maximum distance of a few feet. The mineralized rock courses its irregular path through the sandstone without apparent regard for lithologic characteristics, rock color, bedding, or fracturing. No uranium precipitant, such as carbonaceous material or hydrocarbons were noted in the outcrop. Carbon may be present in microscopic particles. The use of a gamma-ray detection instrument is nearly always necessary to fistinguish mineralized from barren rock. The scattered and very irregular distribution of mineralized rock makes the depositunattractive from an economic mining standpoint.

Scintillometer traverses across the face of the cliff led the examining team to conclude that not enough mineralized rock is present at the outcrop to permit economic mining either by conventional underground methods or by open cut. The cliff face at Penn Haven Junction affords an excellent exposure, in two dimensions, of the uranium-bearing Catskill sandstone. Field examination afforded no geologic reasons why the amount or grade of mineralized rock should increase in the third dimension--back into the mountain.

The best of a large series of samples taken by the USGS ran 0.56 percent uranium. Locations and values of samples and scintillometer readings in MR/HR are shown on figure 3. Close correspondence of eU and U assays indicate the deposit is in equilibrium.

At least three other localities are known along the Lehigh River valley where uranium minerals are found. At one locality on Mount Pisgah, about four miles south of Penn Haven Junction, uranium is found in the Pottsville formation of Pennsylvanian age. The deposit on Mount Pisgah stronely resembles the occurrence at Penn Haven Junction in many respects. The Mount Pisgah deposit was explored and developed by the Lehigh Coal and Navigation Company. Twelve lots, or about 320 tons, of ore were mined from an adit and small stope. Average grade of the ore was about 0.20 percent U_3O_8. The ore is stockpiled and has not been shipped. The Mount Pisgah locality is the only place in Carbon County where any attempt at uranium mining has been made. To my knowledge no ore reserves remain of the Mount Pisgah deposit.

Because the ratio of mineralized rock to barren rock is so low and because the mineralized areas are so small, any exploration drilling would have to be on very close centers, 25 feet or less, to afford an accurate picture of the geologic conditions involved and to discover the small mineralized areas. The locations of drill holes would have to be on a randum and arbitrary basis because guides to ore and ore controls are unknown. Mining would have to be on a costly hand-picking and sorting basis. Exposures in the cliff face show that a closely spaced, high cost per foot, drilling program would probably discover two to six hundred tons of ore that could be hand-sorted from barren sandstone.

Availability of Labor, Material, Water, etc.

Many men who were previously employed in the coal mining industry in the district are now available for employment. A small spring-fed stream sufficient for drilling dlows down the draw just south of the drilling area. Quantities of water could be pumped from the Lehigh River if permission could be obtained to pipe it across the railroad right of way. Diesel or

gasoline engines would have to be used as a source of power. The wage scale for common labor varies from $1.25 to $1.50 per hour.

Applicant's Proposal, Alternate Proposal, and Geologic Target

- Applicant's Proposal -

The applicant proposes to diamond core drill a total of 6,575 feet at a total cost of $50,700.00. The program was divided into two stages as follows:

	Total feet	No Holes	Size Core, In.	Total Cost	Cost per Foot
Stage I	675	16	7/8	$6,498.00	$9.626
Stage II	5,900	33	(AX)1-1/8	$37,704.00	6.39
Totals	6,575	49		$44,202.00	

Stage I was to be drilled with an applicant-owned gasoline powered hand-held drill producing a 7/8-in. diameter core. It was planned to have Stage II drilled by a contract core drilling company to produce AX(1-1/8") core. The applicant's estimate of cost by contract drilling was made before bids were received from contractors. Up to the time of examination no consideration had been given to the mode of access to the drilling area and very little to the drilling pattern or the difficult problem of making drill set-ups and moving the drill between set-ups.

-Alternate Proposal -

An alternate or revised drilling and cost program, which could be incorporated in a contract, was compiled in conjunction with Mr. Volgenau at the time of examination. This program involved set-up locations, hole angles and depths for both Stage I and Stage II. Costs involved in Stage II contract drilling were calculated after receipt of bids.

Drill hole layout is shown on Figure 2. Drill hole data and estimated costs are presented on the following pages. These data will be of

possible use in the event that the recommendations of the Field Team representatives do not meet with the approval of reviewing authorities.

Stage I - Hole Layout

Hole (h) Company hole 7 - deepen from 9' to 60'	51'
Holes a,b,c,d,e,f,g (7 holes @ 60' each)	420'
Holes i, j (2 holes @ 25' each)	50'
Total footage, Stage I	521'

Stage II - Hole Layout

Holes 1,2,3,4,5,6,7,8,9,10,11,12,13 (13 holes @ 135' each)	1755'
Holes 14,16,18,20,22,24,26 (7 holes @ 243' each)	1701'
Holes 15,17,19,21,23,25 (6 holes @ 255' each)	1530'
Holes 27,28,29,30,31,32 (6 holes @ 285' each)	1710'
Total footage, Stage II	6696'

Stage II - Drill Site Preparation

6 set-ups for set-up Line "A"

7 " " " " " "B"

Summary of Costs

		Total Cost	Cost per Foot
Stage I:			
	Drilling by Eastern Uranium	$3,520.82	$ 6.76
	" " Sprague & Henwood, Inc.	4,515.11	8.67
	" " Joy Mfg. Co.	4,051.16	7.78
Stage II:			
	Drilling by Sprague & Henwood, Inc.	$40,792.05	$ 6.09
	" " Joy Mfg. Co.	37,969.44	5.67

Company Drilling

STAGE I

7/8" dia. core
portable drill

521' d.d. 10 holes @ 15' per shift = 35 shifts

Labor

Driller, 280 hrs. @ $2.50 per hr.	$700.00	
Helper 280 hrs. @ 1.50 per hr.	420.00	$1,120.00
Driller subsistence 35 days @ $6	$210.00	
Helper " 35 days @ $2	70.00	280.00

Use Allowance

Portable drill (cost $1300) 5 yr.amort.& up-keep 35 days @ $1.50 per day	$ 52.00	
2 Water pumps (cost $520) 5 yr. amort. & up-keep 35 days @ .50 per day	17.50	
1 Geiger (counter &probe) (cost $250, 2 yrs.) 35 days @ .50 per day	17.50	
26 bits & 2 reamers @ 20' per bit (resetting @ $30 each)	840.00	
Station wagon (30 mi.per day 35 days @ 7¢ per mile)	73.50	1,001.00

Supplies to be Purchased

Gasoline: drill & 2 pumps, gas @ 27¢/gal. 15 gal. per shift for 35 shifts	$141.75	
Lub.oil & grease: $.30 per shift for 35 shifts	10.50	
Lumber for drill platform 390 b.f. @ $150/M	58.50	
Nails	3.00	
22 core boxes & covers @ $3.00	66.00	279.75

Analyses

10 chemical analyses @ $5.00	$ 50.00	
10 radiometric determinations @ $5.00	50.00	100.00

Technical Assistance

Geological direction & supervision: 7 weeks @ $65.00	$455.00	455.00

Insurance & Payroll Taxes on $1575

Fed. & Stage Unemp. Ins. @ $3.00/$100	$ 47.25	
Stage disability @ .55/$100	8.66	
F.I.C.A. @ 2.00/$100	31.50	87.41

Core Storage

3 months @ $30.00	30.00

Contingencies

5% of $3353.16	167.66
Total Stage I	$3,520.82

Cost per foot, Stage I = $6.76

By Contract at Contractors' Prices

Sprague & Henwood, Inc.

STAGE I

(Sub-Contract Costs)

521' AX drilling @ $5.85	$3,047.85	
Preparing 10 locations @ $25.00 each	250.00	
9 moves @ $30.00	270.00	
Total - Drilling,moving,set-ups		$3,567.85

Contract cost - Set-ups, moving, drilling - $6.85 per foot

(Non-Contract Costs)		
(Use Allowance)		
Station wagon 14 trips, 50 mi.each @ 7¢/mile	$49.00	
Geiger probe (cost $250, @ 50¢ for 14 tays)	7.00	
Total Use Allowance		56.00
(Supplies to be purchased)		
22 core boxes & covers @ $3.00	$66.00	66.00
(Analyses)		
10 chemical @ $5	$50.00	
10 radiometric @ $5	50.00	100.00
(Geological direction & supervision)		
7 weeks @ $65	$455.00	455.00
(Rentals)		
Core storage - 3 months @ $10	$30.00	30.00
(Insurance & Payroll Taxes on $455.00)		
Fed. & Stage Unemp. Ins. @ $3/$100	$13.65	
Stage Disability @ $.55/$100	2.50	
FICA @ $2.00/$100	9.10	25.25
Total less contingencies		$4,300.10
Contingencies on $4,300.10 @ 5%		215.01
Total Cost, Stage I		$4,515.11

Cost per foot - $8.67

By Contract at Contractor's Prices

Joy Manufacturing Co.

STAGE I

521' AX drilling @ $6	$3,126.00	
Moving & set-ups	0.00	
Total Drilling (no charge for moving or set-ups)		$3,126.00

Contract Costs $6.00 per foot

- - - - -

Non-Contract Costs

All Non-Contract Costs are same as for Sprague & Henwood, Inc.

except for Contingencies listed below:	$732.25
	.....
Contingencies on $3,858.25 @ 5%	$192.91

Total Cost, Stage I	$4,051.16
Cost per foot - - - -	$7.775

Sprague & Henwood, Inc.

STAGE II

Sub-Contract Costs:

6696' AX core drilling @ $4.95 per ft.	$33,145.20	
Preparing 13 locations @ $50	650.00	
Moxing, set-up to set-up: 13 @ $75	975.00	$34,770.20
Total Sub-Contract		

Non-Contract Costs

Use Allowance:

Based on 20'/shift, or 335 total shifts (135 shifts each for 2 drills & 65 shifts for a single drill) Total days = 200

Station wagon - 30 mi./day for 120 days @ 7¢/mile	252.00	
Geiger counter & probe (cost $250, 2 yrs. amort.) 120 days @ 50¢	60.00	
Total Use Allowance		312.00

Supplies to be purchased:

280 core boxes & covers @ $3		840.00
Rentals: Core storage 11 months @ $10		110.00
Assays: 30 chemical analyses @ $5	$150.00	
30 radiometric determinations @ $5	150.00	
Total assaying		300.00

Technical Assistance:

Surveyor & assistant, 2 days' field work @ $50 (to lay out Stage II holes and tie in holes in Stage I)	$100.00	
Surveyor, 1 day @ $35 (Map with hole elev.& locations)	35.00	
Geologic direction & superintendence, & assist handling core 30 weeks @ $65	1950.00	
Total Technical		2,085.00
Labor: Handling core - 240 hrs. @ $1.25/hr.		300.00
Insurance & Payroll Taxes on $2385.00:		
Fed.& Stage Unempl.Ins. @ $3/$100	71.55	
State Disability @ $.55/$100	13.12	
FICA @ $2/$100	47.70	132.37
Contingencies @ 5% on $38,849.57		1,942.48

Total Cost STAGE II (by Spragne & Henwood, Inc.) $40,792.05

Cost per foot for 6696' - $6.092

Joy Manufacturing Co.

STAGE II

after receiving bids

Sub-Contract Costs:

6696' AX core drilling @ $4.50 per foot=	$30,132.00	
Preparing 13 set-ups and preparing locations for 32 holes @ $150 per each set-up	1,950.00	
Total Sub-Contract		$32,082.00

All Non-Contract costs are the same as for

Sprague & Henwood, Inc. except Contingencies	$ 4,079.37
Contingencies @ 5% on $36,161.37	1,080.07

Total cost STAGE II (by Joy) - - $37,969.44

Cost per foot - - - - - - - - - $5,670

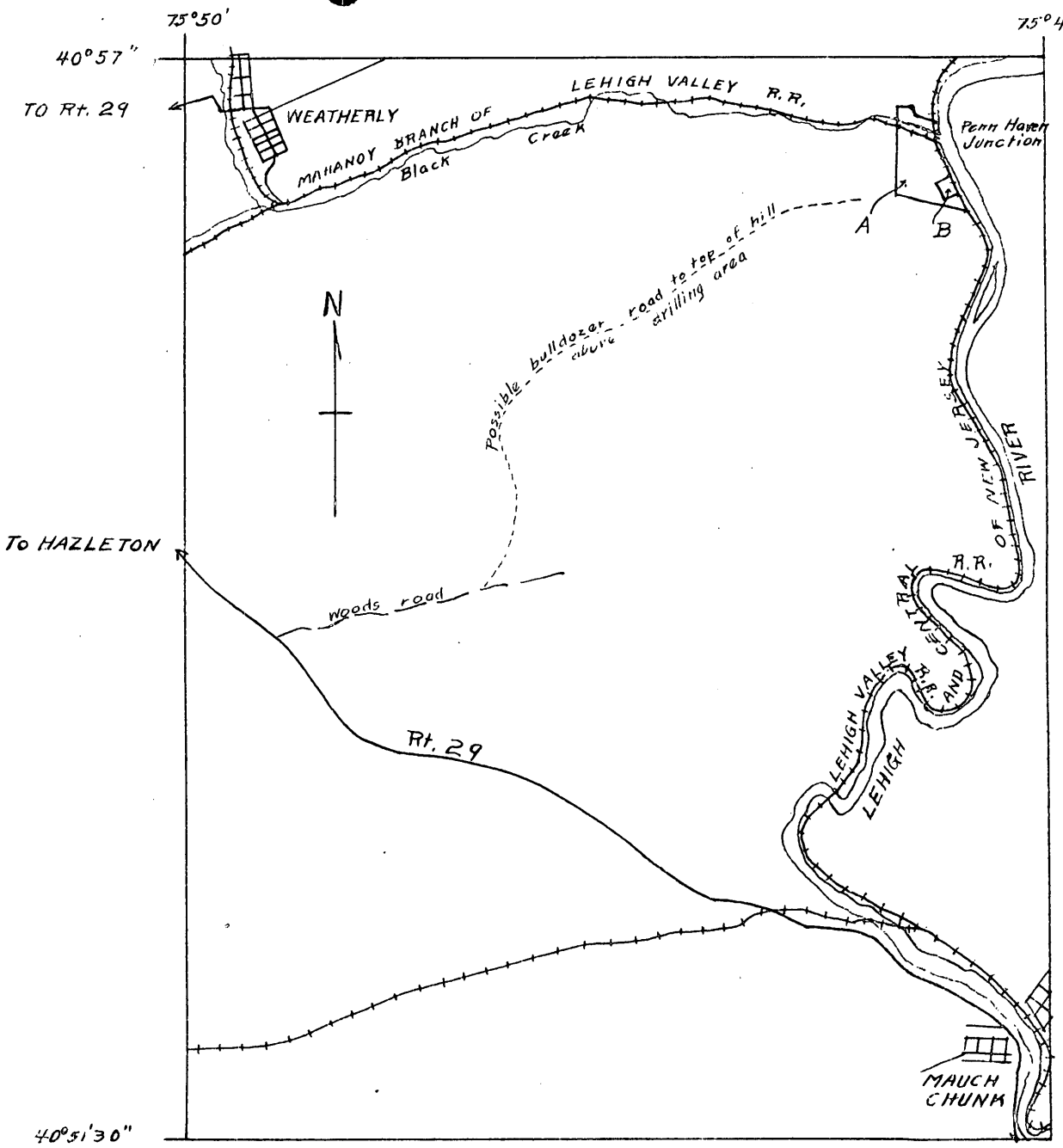
H. L. Burmeister

H. L. Burmeister, Mine Examination & Exploration Engineer.

W. P. Williams

W. P. Williams, Geologist

November 3, 1955



RECEIVED
NOV - 8 1955

EASTERN URANIUM, INC.
CARBON COUNTY, PA.

STATE OF PENNSYLVANIA
MAUCH CHUNK and HAZLETON QUADS.

DMEA DOCKET NO. 3418

U.S.B.M. AUG. 1955

0 miles 1

FIG. 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
Room 13, Post Office Building
Knoxville 2, Tennessee

RECEIVED
OCT 21 1955

October 20, 1955

Air Mail

Mr. Thomas N. Walthier
67 Clinton Avenue
New Providence, New Jersey

Re: DMEA-3918 (Uranium)
Eastern Uranium, Inc.

Dear Tom:

This is in reply to your letter of October 17, inquiring about the status of the application from Eastern Uranium, Inc.

At the time of the examination, the field examiners - Mr. Burmeister of the Bureau of Mines and Mr. Williams of the Survey, explained to Eastern Uranium that their report could not be submitted until they had received (1) bids on core-drilling from three contractors, for use in establishing reasonable costs in the exploration contract, (2) permission from the Lehigh Valley Railroad for passage of equipment over its right-of-way and (3) assurance that the railroad will not object to the drilling above its tracks and telegraph wires.

I have just called the College Park office of the Bureau of Mines, and Mr. W. T. Millar tells me that these three items have been received recently, and that the field examination report will be submitted in the very near future. It will then be subject to review and approval or denial by the Washington staff of DMEA.

I can well understand Mr. Volgenau's desire to get things started before winter weather arrives. (Right now, it seems to be arriving in Knoxville already.) We will move this along as fast as we can, now that the required data have been provided.

I'm not planning to take the GSA Appalachian trip, but I do expect to go to New Orleans, so I'll hope to see you there.

With best regards, I am

Sincerely,

Robert A. Laurence
Executive Officer
DMEA Field Team, Region V

RAL/mg
cc - Operating Committee (2) Lynch - Millar - Williams - Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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Robert A. Laurence
Executive Officer
DMEA Field Team, Region V

RAL/mg
cc - Operating Committee (2) Lynch - Millar - Williams - Files

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

October 10, 1955

Memorandum

To: File

From: Michael Ching, Mining Engineer
Rare and Miscellaneous Metals Division

Subject: Status of report of field examination (Region V)
Docket No. DMEA-3918 (Uranium)
Eastern Uranium, Inc.
Stephen Balliet Warrantee Tract
Carbon County, Pennsylvania

I phoned the College Park office, Mr. Millar, today and inquired about the status of the above application. He stated that the field examiners wrote to the Applicant for information concerning property rights. The Field report is near completion except for such information.

Michael Ching
Michael Ching

cc to: Mr. Adams

Surname Copy

Ching
Ellis
Selfridge

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

AUG 17 1955

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13
Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA-3918 (Uranium)
Eastern Uranium, Inc.
Stephen Balliet Warrantee Tract
Carbon County, Pennsylvania

Dear Mr. Laurence:

The subject application is being referred to you for investigation, a field examination if warranted, and recommendation. A copy of the application was forwarded to you on July 28.

Enclosed are two copies each of comments and recommendations by W. P. Williams and John E. Crawford of the Uranium Commodity Committee, dated August 5 and August 10, 1955, respectively.

In the event a contract is recommended, a Consent to Lien would be required of S. F. Druckenmiller.

It is possible that the program as proposed by the applicant could be subjected to considerable modification. The applicant states that the slope above the railroad cut is estimated as 60°, but the sketch showing the drilling plan indicates a slope of about 42°.

The estimated overall costs are very high, amounting to $9.63 per foot for the first stage and $6.39 per foot for the second stage. These costs compare with an average cost of about $3.50 per foot for some recent contracts on the Colorado Plateau and $5.15 per foot for the Chalmers contract (DMEA-3591) in New York.

It is important that all available information be secured from the AEC as suggested by Mr. Crawford.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (GCS)

Thor H. Kiilsgaard (THK)
Member, Geological Survey

Enclosures

APPROVED:

/s/ Robert W. Geehan (RWG)
Member, Bureau of Mines

Mr. J. E. Crawford, 3641
T. H. Kiilsgaard, 5222
Code 700
Mr. Ching
Messrs. J. O. Hosted, 3210, GSA
Admr. Reading File
Operating Committee
Docket

MChing:ai
8/16/55
cc to:

Surname Copy

Ching
Ellis
Rilegand
Guhen
Selfridge

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

AUG 17 1955

Mr. Howard L. Volgenau, President
Eastern Uranium, Inc.
35 West 53rd Street
New York 19, New York

Re: Docket No. DMEA-3918 (Uranium)
Stephen Balliet Warrantee Tract
Carbon County, Pennsylvania

Dear Mr. Volgenau:

The application for assistance in exploring the subject property in Carbon County, Pennsylvania, under the captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration. It has been referred to the Executive Officer of Region V at the following address:

Mr. Robert A. Lawrence
Executive Officer
DMEA Field Team, Region V
Room 13
Post Office Building
Knoxville 2, Tennessee.

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

Sincerely yours,
C. O. Mittendorf (for)

Administrator

MChing:ai
8/16/55
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Ching
DMEA Field Team, Region V (2)

8/11/55 gla

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

August 10, 1955

Memorandum

RECEIVED
AUG 1 1 1955

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

From: John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee

Subject: Application for assistance, DMEA Docket 3918, Eastern Uranium, Inc., Carbon County, Pennsylvania

I have reviewed the attached application for assistance, Eastern Uranium, Inc., DMEA Docket 3918; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

Eastern Uranium, Inc., has done some exploratory drilling with encouraging results as recorded by their drill hole counter. Chemical assays of a sample taken on the property were 0.37 percent U_3O_8 and 0.51 percent U_3O_8. The applicant further states that he understands that the AEC sampled the entire deposit with very encouraging results.

The applicant proposes to drill some 6,595 linear feet to delineate and sample the uranium "rolls" under Broad Mountain. A maximum of 5,900 linear feet will be of AX bit size, which has a 1-3/16" core diameter at an estimated cost of $4.50 per foot.

We recommend that this application be sent to the Field Team for investigation and report, and that they consult with Jack Kratchman, Division of Raw Materials, Atomic Energy Commission, Washington, D. C.

John E. Crawford

John E. Crawford

Attachment

8/8/55 glc

IN REPLY REFER TO:

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

August 5, 1955

RECEIVED
AUG - 5 1955

Memorandum

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

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

Subject: Review of DMEA application, Docket No. 3918, Eastern Uranium, Inc., 35 West 53rd St., New York City, (Uranium).

The applicant proposes to core drill for uranium ore on 97-1/4 acres of land located near Penn Haven Junction, on the west bank of the Lehigh River, Lehigh County, Pennsylvania. The proposed project would consist of a total of 6,575 feet of core drilling which, with attendant bulldozing, supervision, assaying, surveying, etc., is estimated by the applicant to cost $44,202.

Uranium mineralization has been known in the vicinity of Penn Haven Junction since the late 1800's. Two other uranium occurrences, in the Pottsville and Catskill formations, near Penn Haven Junction have been explored by core drilling by the Lehigh Coal and Navigation Co., with no commercial results.

The relatively small, tight anticlines may represent structural control that might result in ore deposits a few tons or a few tens of tons in size. Intuitively I doubt that a large significant ore body would result from the proposed exploration.

However, since uranium mineralization is very likely present on the property, I recommend that the Field Team be requested to examine the property and to report on their findings.

W P Williams

W. P. Williams

IN REPLY REFER TO:

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

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AUG - 5 1955

August 5, 1955

Memorandum

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

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

Subject: Review of DMEA application, Docket No. 3916, Eastern Uranium, Inc., 35 West 53rd St., New York City, (Uranium).

The applicant proposes to core drill for uranium ore on 97-1/4 acres of land located near Penn Haven Junction, on the west bank of the Lehigh River, Lehigh County, Pennsylvania. The proposed project would consist of a total of 6,575 feet of core drilling which, with attendant buildozing, supervision, assaying, surveying, etc., is estimated by the applicant to cost $44,202.

Uranium mineralization has been known in the vicinity of Penn Haven Junction since the late 1800's. Two other uranium occurrences, in the Pottsville and Catskill formations, near Penn Haven Junction have been explored by core drilling by the Lehigh Coal and Navigation Co., with no commercial results.

The relatively small, tight anticlines may represent structural control that might result in ore deposits a few tons or a few tens of tons in size. Intuitively I doubt that a large significant ore body would result from the proposed exploration.

However, since uranium mineralization is very likely present on the property, I recommend that the Field Team be requested to examine the property and to report on their findings.

WW

W. P. Williams

WPWilliams:iml
G-8/5/55

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Hosted, 3210

July 28, 1955
Subject: DMEA-3918
Re: Exploration Assistance

Eastern Uranium, Inc.
35 West 53rd Street
New York 19, New York

Gentlemen:

The receipt of your application dated July 28, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3918 and referred to the Rare & Miscellaneous Metals Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
JUL 28 1955

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. 3918
Metal or Mineral Uranium
Date Received 7-28-55
Estimated Cost $44,202
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: Eastern Uranium, Inc. (A Delaware Corporation)
35 West 53rd Street
New York 19, New York
(names of Officers and Directors attached)

(*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
(see copy of lease attached)

(*b*) State any mine name by which the property is known. none

(*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. copy of lease attached

(*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.

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.

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 15 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.).

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated July 28th, 1955

Eastern Uranium, Inc.
(Applicant)

By Howard L. Polyman

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

RECEIVED
JUL 28 1955

Attachment to Section 1 (c)

Application for aid in an exploration project by

EASTERN URANIUM, INC.
35 West 53rd Street
New York 19, N.Y.

Officers & Directors

Howard L. Volgenau President & Treasurer Director	Partner, Coulter & Volgenau Associates Secretary-Treasurer, Scarsdale Uranium Mines, Ltd.
Homer H. Woods Secretary & Director	Member, Hodgson, Russ, Andrews, Woods & Goodyear, Attorneys-at-Law, Buffalo, N.Y.
Kenneth L. Pike Assistant Secretary Director	Production Manager, International Paper Company
M. Ronald Brukenfeld Director	Partner, La Grange & Co., Members, New York Stock Exchange
Dr. Brooks F. Ellis Director	Chairman, Department of Geology, New York University; Chairman and Curator of Micropaleontology, American Museum of Natural History.
Dr. Thomas N. Walthier Director of Exploration & Mining Director	Formerly Staff Geologist, Raw Materials Division, Atomic Energy Commission; Supervising Geologist, Iron Ore Company of Canada, and Labrador Mining & Exploration Company.

Attachment to Section (a, c, d) Application for aid in an exploration project by

COPY

EASTERN URANIUM, INC.

THIS AGREEMENT, made the 30th day of April, 1955, by and between Dr. S. F. DRUCKENMILLER of Lansford, Pennsylvania, (hereinafter called "Lessor") and EASTERN URANIUM, INC., a Delaware Corporation, with its principal office located at 100 West Tenth Street, Wilmington, Delaware (hereinafter called "Lessee").

WITNESSETH:

That for and in consideration of the sum of Five Dollars paid by the Lessee to the Lessor, the receipt of which is hereby acknowledged, and of the mutual covenants hereinafter contained, Lessor and Lessee agree as follows:

1 (a) Lessor does hereby grant, demise, lease and let exclusively unto Lessee, and Lessee hereby takes, all that tract of land situate in the Township of LEHIGH, County of Carbon and Commonwealth of Pennsylvania, containing ninety-seven and one-quarter (97 1/4) acres more or less and more particularly described in Schedule A which is annexed hereto and made a part hereof, (hereinafter called the "premises"), for the purposes of prospecting, searching and exploring for minerals of every sort (including without limitation coal, oil, gas and fissionable materials), and mining (including the right to mine by any method or technique now in use such as strip mining or excavation or any method of technique which may at any time in the future be developed or discovered), drilling, storing, preparing concentrating, processing and marketing of said minerals, including storing, concentrating, processing and marketing minerals procured from land outside of the premises.

(b) Lessee represents to Lessor that the primary purpose of this is the prospecting, searching and exploring for fissionable materials, including without limitation uranium and thorium, and the mining, extracting, treating and marketing thereof and that the mining, drilling or producing of other materials will be limited to the extent that the same is necessary for or incidental to said primary purpose.

2 (a) Lessee shall employ geological and geophysical crews to explore for uranium and other valuable minerals on the premises. If such minerals are not found in commercial quantities, Lessee shall give notice to that effect to Lessor within Thirty (30) days from such determination, and this agreement, and the estate hereby conveyed, shall forthwith cease and determine.

(b) Upon proof satisfactory to Lessee of the existence of a sufficient quantity of commercial grade uranium or other mineral, Lessee shall undertake mining operations, and all such operations shall be conducted in a workmanlike manner, and in full compliance with applicable state and federal laws. Failure of Lessee to commence such operations within a period of one year from the date it contracts with the Atomic Energy Commission for the purchase of uranium, or three (3) years from the date of this agreement, whichever is sooner, Lessor, his heirs or assigns, may reenter in and upon the demised premises.

3. Lessee shall have the right on the premises to erect structures, to utilize equipment, to build roads for ingress, egress and other purposes, to lay pipe, to store or deposit waste, rock or other materials, to use water located at the premises, to remove timber and other obstructions and in general to carry on all other activities on the leased premises which may be necessary or expedient to carry out the purposes set forth in paragraph "1" hereof.

4. Lessor hereby releases to the Lessee any right of support which it now has or may have against Lessee and to the extent that this lease may be considered a conveyance of minerals in place, said right of support is likewise hereby conveyed to Lessee by Lessor. Lessor further releases Lessee from any liability for any damage or injury to the leased premises resulting from his conduct of the activities referred to in paragraph "1" or "3" hereof.

5. Lessee further covenants and agrees that it will assume full responsibility for any and all damages which shall or may in incurred by reason of subsurface subsidences, surface faults or any other surface conditions arising as a result of subsurface mining operations, and failure to protect Lessor from all damages arising therefrom shall be a violation of this agreement, and give Lessor right of reentry as for any other violation thereof.

6 (a) Lessee shall pay the Lessor a royalty of ten percent (10%) of the value of the uranium ore mined from the premises and sold by the Lessee, as determined by the price schedule established on such ore by the Atomic Energy Commission. For the purposes of such royalty payments, "value" shall be deemed to include the base price, plus premium for grade and production bonus which may be granted by the Atomic Energy Commission. It shall not include transportation, charges or the development bonus or haulage allowances granted under A.E.C. price schedules.

(b) In the event that minerals referred to in paragraph "1" hereof, other than uranium, are discovered on the premises, the Lessee shall pay the Lessor a royalty of ten percent (10%) of the actual sales price received by the Lessee from such minerals mined and sold from the premises, less transportation charges or allowances.

7. All royalties payable under this agreement shall be paid Lessor, his heirs or assigns, by the twentieth (20th) day of the month next following the month in which sales of uranium are completed through the receipt of the sale price, and royalties paid on other minerals shall be made by the twentieth (20th) day of the month next following the month in which they have been sold.

8 (a) If the Lessee shall fail to pay royalties or taxes herein provided for within a period of ninety (90) days after the same shall have become due, or shall continue to violate substantially any other covenant or condition of this agreement, after 30 days prior written notice of such violation is given by Lessor to Lessee, this said agreement and the estate hereby conveyed shall forthwith cease and determine, and the said Lessor, his heirs or assigns may reenter in and upon the demised premises.

8 (b) The Lessor shall have the right of such reentry as often as the default or breach of any covenant as aforesaid may be so made, either with or without legal process, and if with process, then any attorney of any court may and is hereby authorized to confess judgement in ejectment against the said party, its successor and/pr assigns, without stay of executive or writ or error, and a writ of possession shall forthwith be issuable by the Sheriff to deliver possession of the said premises to the Lessor, his heirs and assigns, and if a copy of this agreement is filed in any action for the recovery of possession as aforesaid, it shall not be necessary to file the original as a warrant of attorney, any law or rule of Court to the contrary notwithstanding. No such determination of this agreement, nor the estate hereby conveyed, nor the taking recovery or possession of the said premises shall deprive the Lessor of any action against the Lessee either at law or in equity. In the event of any dispute between the parties, the provisions of this paragraph shall be subject to the provisions of paragraph "17".

9. Whenever the Lessee shall have determined that all the marketable minerals practicable to mine have been removed from the premises hereby demised and the royalties paid by the Lessee, it shall be relieved from the further covenants hereinbefore contained, and what is left of the premises hereby granted shall revert to the Lessor, his heirs and assigns without formal reentry of its former estate.

10. At the expiration of this lease Lessor will become entitled to all buildings erected by Lessee on the premises. Lessee will have the right to remove within six (6) months following the expiration of the lease all machinery, equipment, fixtures, portable structures and all other property owned by the Lessee and located on the premises, except buildings. The Lessee shall be under no obligation at any time to remove or otherwise dispose of waste, rock and other material which may be placed on the premises as a result of mining, processing and marketing operations of the Lessee in the ordinary course of the business of the Lessee.

11. The Lessor warrants title to the premises and covenants and agrees to defend the title to the premises, and further covenants and agrees that Lessee shall, at all times during the demised term, peaceably and quietly, have, hold and enjoy the premises for all of the purposes in this lease specified.

12 (a) The Lessor hereby warrants and agrees to pay promptly all real estate taxes on the premises or on the interest or estate in the premises herein leased, based upon the present assessed valuation of the property, whether this agreement be construed as a lease or a conveyance or whether said taxes are assessed in the name of the Lessor or the Lessee. Increased real estate taxes resulting from higher assessed valuations attributable to mining operations under this agreement shall be paid by the Lessee.

12 (b) The Lessee at its option may pay and discharge any taxes owed by the Lessor, or mortgages or installments thereof or interest thereon, or other liens existing at any time against the premises, and in the event Lessee exercises such option, it shall be subrogated to the right of any holder or holders of such liens and may, at election of Lessee, reimburse itself by applying to the discharge of such taxes, mortgages or installments thereof or interest thereon, or other liens, any royalties accruing hereunder.

13. Neither this agreement, nor the estate hereby granted, shall be sublet, assigned, conveyed or encumbered by any lien of any kind by the Lessee, either voluntarily or involuntarily by operation of law, whether by execution, insolvency, bankruptcy or otherwise, without the written consent of the Lessor, and no judicial or other sale or transfer of any kind made in pursuance of any order of any court of judicial officer, or otherwise, shall have the effect of transferring any interest or title of the Lessor in this agreement, or the estate hereby granted, to any other person, without such written consent of the Lessor, his heirs or assigns thereto, provided that the Lessee may assign its interest in the within lease to one of its subsidiary corporations without written consent of Lessor.

14. This lease shall run until March 1, 1962 and may thereafter be renewed by Lessee for successive periods of five (5) years each by Lessee giving written notice of renewal to Lessor of such renewal not less than sixty (60) days prior to March 1, 1962 for the first such five-year renewal period, and written notice of renewal to Lessor of each additional five (5) year renewal period not less than sixty (60) days prior to the expiration of the last effective renewal period, provided, however, that Lessee shall have no right to renew said lease unless at the time of such renewal Lessee is actively engaged in one or more of the purposes set forth in paragraph "1" herein, and has substantially performed all its obligations under this lease.

15. Lessor shall have the right to examine through an authorized agent such books and records of Lessee as may be required to determine whether Lessee has paid the proper amount of royalties pursuant to paragraph "6" hereof.

16. In the event at any time, an adverse claim to ownership of any of the premises herein leased in made against Lessor, Lessee shall thereafter deposit any royalties to be paid pursuant to paragraph "6" on uranium or other minerals taken from such part of the premises herein leased as is the subject matter of said adverse claim in a special account in a bank or trust company until such time as such dispute is finally resolved.

17. Any controversy or claim arising out of or related to this agreement, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgement upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof.

18. The Lessee shall assume all risk for injury to persons or property, resulting from or incident to all or any of the operations of the Lessee on the leased premises, or from the exercise or enjoyment of any right or privilege granted under this Lease, and agrees to protect the said Lessor and save him harmless of and from all claims, actions or suits at law or equity or otherwise that may be brought against him or them in consequence thereof, as well as from the payment of all counsel fees and costs of suit which he may incur in connection therewith. Public Liability Insurance shall be carried by Lessee naming Lessee and Lessor as insured as their respective interests may appear and memorandum copies of the policies given to Lessor.

19. This lease shall be binding upon and inure to the benefit of the heirs, legal representatives and assigns of the Lessor and the successors and assigns of the Lessee.

IN WITNESS WHEREOF, the Lessor has set his hand and seal and the Lessee has caused this instrument to be signed by its duly authorized officer and its corporate seal to be affixed the day and year first above written.

(signed) S.F. DRUCKENMILLER (L.S.)

EASTERN URANIUM, INC.

By (signed) HOWARD L. VOLGENAU
President

ATTEST:

(signed) HOMER H. WOODS
Secretary

SCHEDULE A

All that tract of ninety-seven and one-quarter (97 1/4) acres of timberland known as the Stephen Balliet Warrantee Tract situate in the Town of Lehigh, County of Carbon, and Commonwealth of Pennsylvania, as recorded in Deed Book 11 page 106, bounded and described as follows:

"Beginning at a hemlock thence by land of Joseph Rakestraw N. 61 and 3/4 degrees W. 172 Perches to a post; thence by land of James M. Porter N. 175 and 1/4 Perches to a stone; thence S. 40 degrees E. 32 Perches to a white pine; thence S. 80 degrees E. 25 Perches to a maple tree at the side of the said River Lehigh; thence down the said River Lehigh by the several courses and distances thereof, crossing the mouth of the said Quakeake Creek, about 249 Perches to the place of beginning. Containing 97 and 1/4 acres and the usual allowance of 6% for roads, highways and the others of the said Tract."

Recorded in the Office for the Recording of Deeds in and for Carbon County in Deed Book No. 162 page 713 - July 13th, 1951.

Attachment to Sections 4, 5 and 6 Application for aid in an exploration project by

EASTERN URANIUM, INC.
35 West 53rd Street
New York 19, N.Y.

4. Physical Description

Uranium mineralization was first discovered at Penn Haven Junction, Pennsylvania in 1953 by Mr. Harry Klemic of the U.S.G.S. (see U.S.G.S. Circular 350) while making an examination of Carbon County for uraniferous material. The uranium occurs in sandstone of Upper Devonian Age exposed in a railroad cut about 1/2 mile south of Penn Haven Junction, Pa. The locality is easily accessible by the Lehigh Valley Railroad which has a flag stop at the Junction. A railroad access truck road from Weatherly to the Junction is also available.

At the prospect, a small anticline trending approximately N. 80°W. exposes uraniferous Upper Devonian (Catskill) sandstone on both the east and west banks of the Lehigh River. On the west side, uranium has been found on both limbs of the fold over a total exposed length of 140 feet. On the east bank of the river, uraniferous sandstone has been traced for nearly 250 feet.

It appears that the uranium minerals were concentrated in the general vicinity of the fold axis, hence the maximum dimension of the mineralized ground probably trends general east and west. This is substantiated by the irregular amoeboid pattern of the uranium in the sandstone. These curved patterns appear to be the cross sections of "rolls" similar to the rolls so characteristic of the Salt Wash uranium-vanadium orebodies on the Colorado Plateau. In the Western deposits the maximum elongation of the orebodies is parallel to the axis of the roll, and it is assumed that a similar relation holds in Pennsylvania.

Kasolite, uranophane (?) and trace amounts of galena have been identified at Penn Haven Junction. Six miles to the south, at Jim Thorpe, secondary uranium minerals at the surface disappear beneath the surface and urananite (?) has been found in their place. It is thought that this will also prevail at Penn Haven Jct.

Several uranium ore deposits are indicated at Penn Haven Jct. and it is desired to explore fully those on the west bank of the Lehigh River by diamond core drilling. This application is submitted to request financial aid to complete drilling this prospect.

Eastern Uranium, Inc. has to date drilled 7 holes at the prospect, totalling approximately 155 feet. Results are summarized in the diagram accompanying this application and in the table following. (Background is about .02 - .03 MR/HR)

Hole No.	Depth	Radioactive Intersections	Magnitude of Radioactivity (by geiger drill hole probe)
1	23 ft.	none	-
1A	25ft.	none	-
* 7	9 ft.	top 6 inches	0.5 - 1.0 MR/HR
11	20 ft.	top 2 feet	.2 - 3.5 "
13	21 ft.	7.5 feet	.15 "
14	36 ft. 6 ins.	11 - 12 feet 16 - 19 "	.15 - .2 " .15 - .45 "

* To explore lower stratigraphic beds, hole 7 will be deepened to 35 feet.

To date, this drilling is the only development work done on the property. There has been no production and too little evidence is presently available to permit ore reserve calculations.

From the surface indications and drill data, several ore lenses measuring 4 - 6 ft. thick and 50 - 75 ft. wide are possible. If these can be traced into the hill for 250 feet, each lens would contain, roughly 10,000 tons of ore.

One 3-foot charnel sample (PHW-4) assayed chemically 0.37 U_3O_8 and 0.51% U_3O_8 by duplicate analysis. It is understood that the Atomic Energy Commission sampled the entire deposit with very encouraging results, but we do not have these figures to submit with this loan application.

Experienced manpower is readily available in the adjacent towns of Weatherly, Jim Thorpe, Lehighton, etc. This large reservoir of mining personnel is available because of the unemployment in eastern Pennsylvania resulting from inactivity in the anthracite mines. Similarly, mining equipment and supplies are also available locally. The maximum distance to electric power is six miles.

Ample water for drilling can be obtained from the Lehigh River which flows past the property.

5 (b) The proposed project consists of drilling 6,595 linear feet on the hill back of the prospect west of the railroad cut. The purpose is to delineate and sample the uranium "rolls" under Broad Mountain. Vertical holes, arranged in a series of rows at increasing distances from the cut, are proposed. Details of hole locations are given in the accompanying diagram. Hole spacing is closest nearest the cut where depths are the shallowest so that as complete an understanding of the rolls may be had at least expense. It is hoped that this initial closely-spaced drilling will permit projecting the ore trend back into the hill with greater certainty than can now be done. Should this prove possible, the remaining drill hole spacing may warrant some modification as the work progresses.

The hill slope above the railroad cut is steep; estimated as a 60° slope. Some bulldozing will be required to prepare drill sites whenever a large drill is used. Several feet of talus and unconsolidated material blankets the hill slope; hence rock blasting to prepare the sites is not anticipated.

Because the lower 75 feet are so steep, and bold outcrops make access particularly difficult, it is proposed to utilize a portable hand operated gasoline driven diamond core drill for the two rows of holes. The trade name is "Packsack Diamond Drill" manufactured in North Bay, Ontario.

All holes drilled to date have been drilled with this machine and core recovery has averaged better than 90%. Core diameter 7/8". 16 holes will be drilled under terms of this loan with this rig, totalling 675 feet. An estimated 60-70 days will be required.

If the results of this initial drilling are favorable and commercial concentrations of ore are still indicated, a second stage of drilling will be begun using contract AX diamond drills. On the other hand, should the portable hand drill fail to uncover promising mineralized rock, four shallow (30-50ft.) exploratory drill holes, spaced 100 feet apart in the third row back from the cliff may be drilled. Up to this point it will not be necessary to bulldoze any of the drill locations.

During the second stage of the drilling, all drill hole sites will be surveyed in a standard base line and a geologist will record the drill results, log the core, and split the radioactive portions for chemical assay by an independent assayer.

(c) The work will start within 15 work days after granting of the loan and will be completed within one year.

(d) Our drilling crew has had 2 months experience using the new portable "Packsack" drill in the Penn Haven Jct. area and elsewhere. The men are now fully qualified in its operation. The deeper, AX, drilling will be contracted to a qualified drilling company such as Sprague and Henwood, E. J. Longyear, or others.

The technical work of Eastern Uranium is under the guidance and direction of Dr. Thomas N. Walthier and Dr. Brooks F. Ellis.

Dr. Walthier was Staff Geologist for Dr. Phillip L. Merritt, Assistant Director, Division of Raw Materials, Atomic Energy Commission from 1952-54. Previously he was Supervising Geologist for the Iron Ore Company of Canada, Ltd. in which capacity he directed and evaluated a considerable part of the search for iron and manganese deposits in Ungava and Labrador. Dr. Walthier came to the Iron Ore Company from the Labrador Mining and Exploration Company, Ltd. where he had been employed as party chief. Dr. Walthier was also Assistant Professor of Geology at New York University for 5 years and Instructor in Geology at Brown University for 2 years. He was also an officer of the Newfoundland Geological Survey for 4 years.

Dr. Ellis is Chairman of the Department of Geology at New York University and Curator of Micropaleontology at the American Museum of Natural History. He is an active geological consultant both in the U.S. and abroad.

6 (a) Upon successful completion of the first part of the drilling (portable rig) a contract driller will be engaged to complete the project. A maximum of 5,900 linear feet of AX core drilling is planned at an estaimted cost of $4.50 per foot for a total cost of $26,550.00.

To prepare drill sites, a bulldozer and operator will be contracted. Including transit time it is estimated that a maximum of 20 days of bulldozing will be required. At a contract price of $150 per day, total bulldozer plus operator expense is $3,000.00 ?

(b) For the company-owned portable drill, 2 men are needed; an experienced senior driller at $20 per day plus travel expenses of $8 per day, and an assistant, employed locally, at $12.00 per day. Total labor cost amounts to $40.00 per day.

Geologic guidance and direction, proportioned for this work, is $50 per week plus travel expenses of $15 per week.

(c) The following are owned or will be purchased by the company: miscellaneous small tools, gasoline drums, core boxes, gasoline and oil, and Brunton compass. Purchase price and rental fee: $300.

(d) Operating equipment and supplies now owned (*) and to be furnished by Eastern Uranium, Inc., plus those to be purchased, with suggested use-allowance, follows:

Unit	Cost	Use-Allowance
* 1 Packsack diamond drill rig	$1,300	
* 2 water pumps plus 450 ft. water hose	270	- $4.50 per foot.
1 water pump plus 300 ft. water hose	250	
* 1 Geiger counter drill hole probe	250	$1,00 per day
*17 diamond bits and reamers	1,000	$1,000.00
* 1 station wagon	2,400	$8 per day plus 8 ¢ per mile
* 2 scintillation counters	1,000	$2 per day
* Lumber for drill platform	150	$150
	$6,620 ÷ 60 = $110.33/mo.	

(The above use-allowance refers to the number of days to be used, not total days of the loan.)

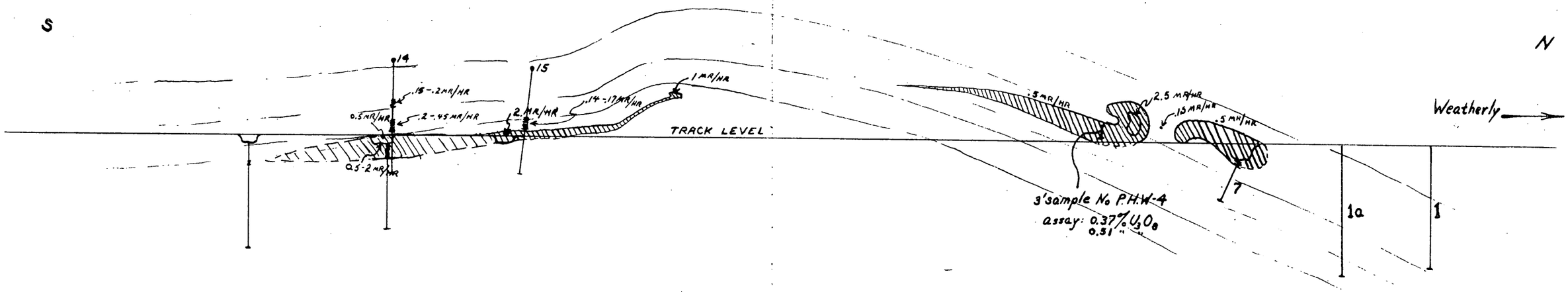
One truck and welding outfit to accompany the company drill rig is now being rented at a rate of $15 per day plus 12¢ per mile mileage.

Summary of Costs - Initial Program

	Item	Cost
I	Portable Drilling Costs	
	675 feet at $4.50	$3,040.00
II	Truck with welding equipment	
	60 days @ $15 rental	900.00
	" " 20 miles a day @ 12¢	144.00
III	10 Assays @ $10	100.00
IV	Geological direction plus expenses	
	12 weeks @ $65.00	780.00
V	Use of equipment	
	a) Geiger Counter & Scintillation Counter	
	36 days @ $2.00	72.00
	b) Station Wagon	
	36 days @ $8.00 rental	288.00
	" " 50 miles a day @ 8¢	144.00
VI	Miscellaneous Supplies, lumber	500.00
VII	Insurance and payroll taxes	230.00
VIII	Contingencies	300.00
	Total Costs - First Stage	$6,498.00

Summary of Costs - Complete Program

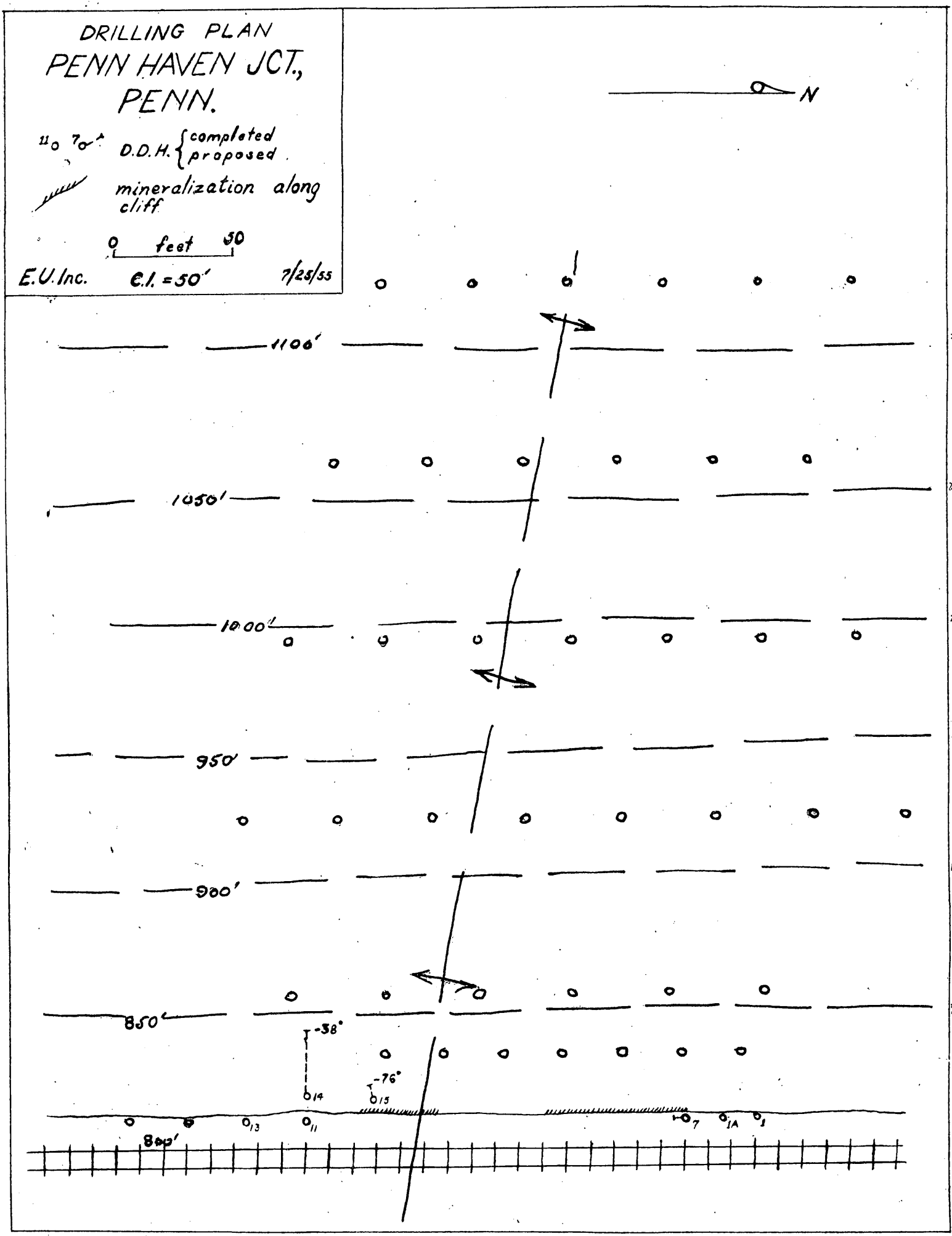
	Item	Cost
I	Total costs - First Stage	$ 6,498.00
II	Contract drill costs 5,900 feet of AX core @ $4.50	26,550.00
III	Contract bulldozing 20 days @ $150.00	3,000.00
IV	Geological direction 38 weeks @ $65.00	2,470.00
V	65 assays @ $10.00	650.00
VI	Surveyor and assistant	500.00
VII	Use of equipment a) Geiger and scintillation counter 150 days @ $2.00	300.00
	b) Station Wagon 120 days @ $8.00	960.00
	" " 50 miles a day @ 8¢	480.00
VIII	Insurance and payroll taxes	694.00
IX	Contingencies - 5%	2,100.00
	Total Cost Complete Program	$44,202.00



Mineralized Railroad Cut
Penn Haven Junction,
Penn.

0 20 40
feet

Shaded areas are mineralized


DRILLING PLAN
PENN HAVEN JCT.,
PENN.
D.D.H. completed
proposed
mineralization along cliff
0 feet 50
E.U. Inc.
C.I. = 50'
7/25/55
N
1100'
1050'
1000'
950'
900'
850'
800'
-38°
-76°
14
15
13
11
7
1A
1

Add to Applications

TLS

MF-203
Revised March 24, 1955

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

RECEIVED
NOV - 8 1955

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In a Deed dated 9 July 1951 and recorded in Deed Book 162, Page 713.

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3/ Write "none" if that is the case. Do not leave lines blank.

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5. Added provision: _____

_____

_____

_____

_____

_____

_____

_____

Dated this 26th day of August, 1955.

Stanley F. Druckenmiller [Seal]

_____ [Seal]

_____ [Seal]

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

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[Corporate Seal]

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Contract Date_____

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_____ [Seal]

_____ [Seal]

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Add to Applications

T.H.B.

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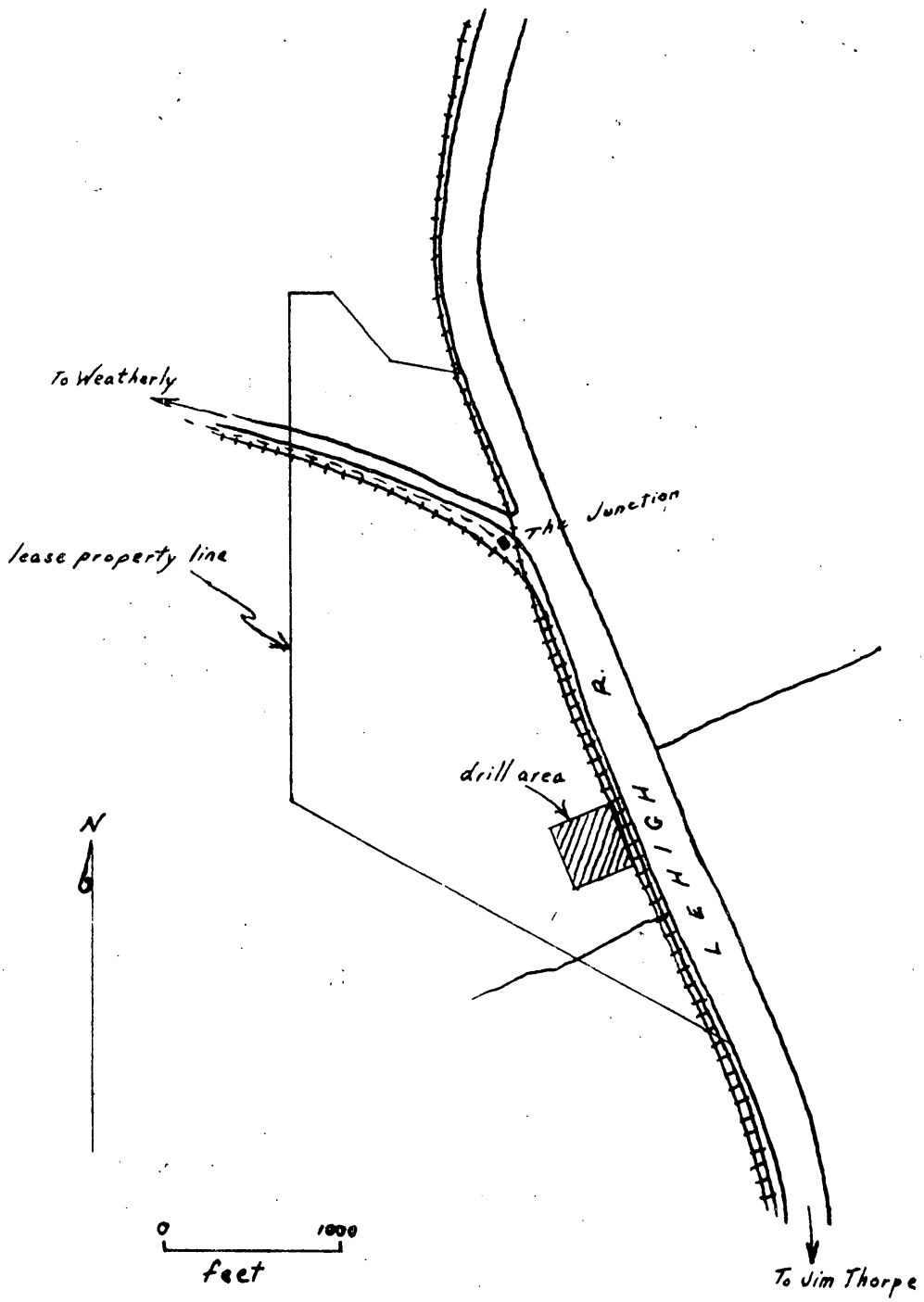
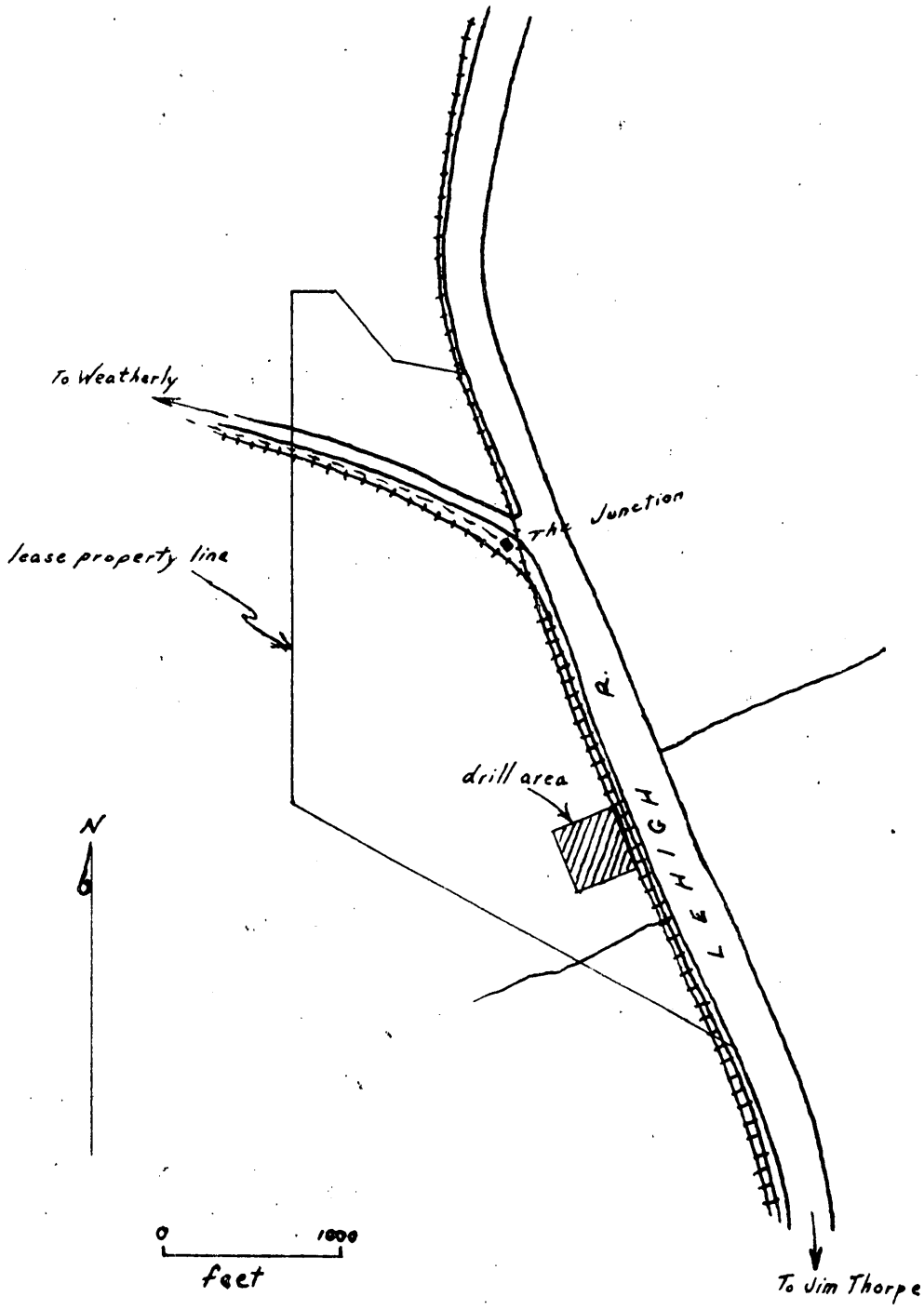
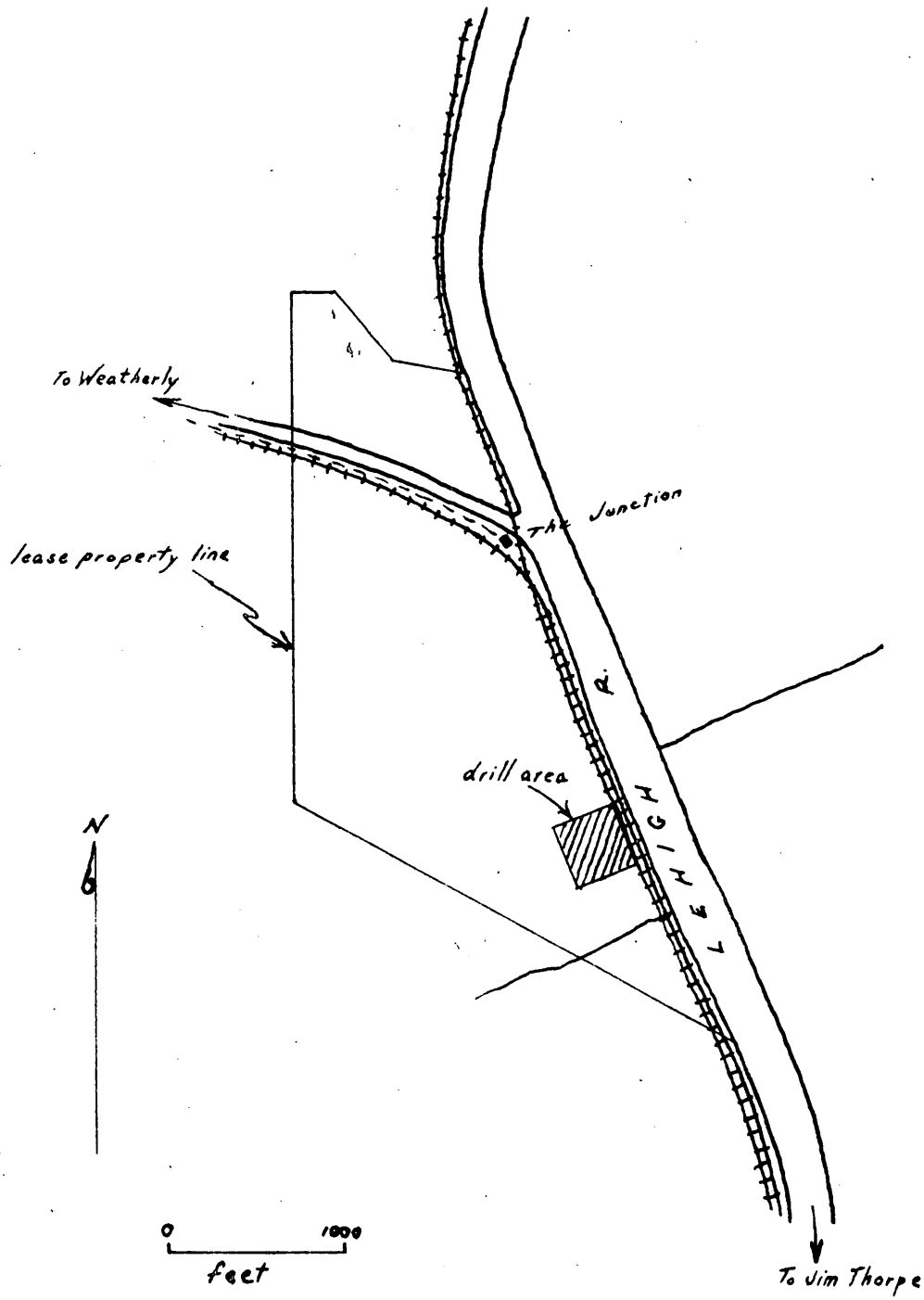



To Weatherly
The Junction
lease property line
drill area
N
0
1000
feet
LEHIGH
To Jim Thorpe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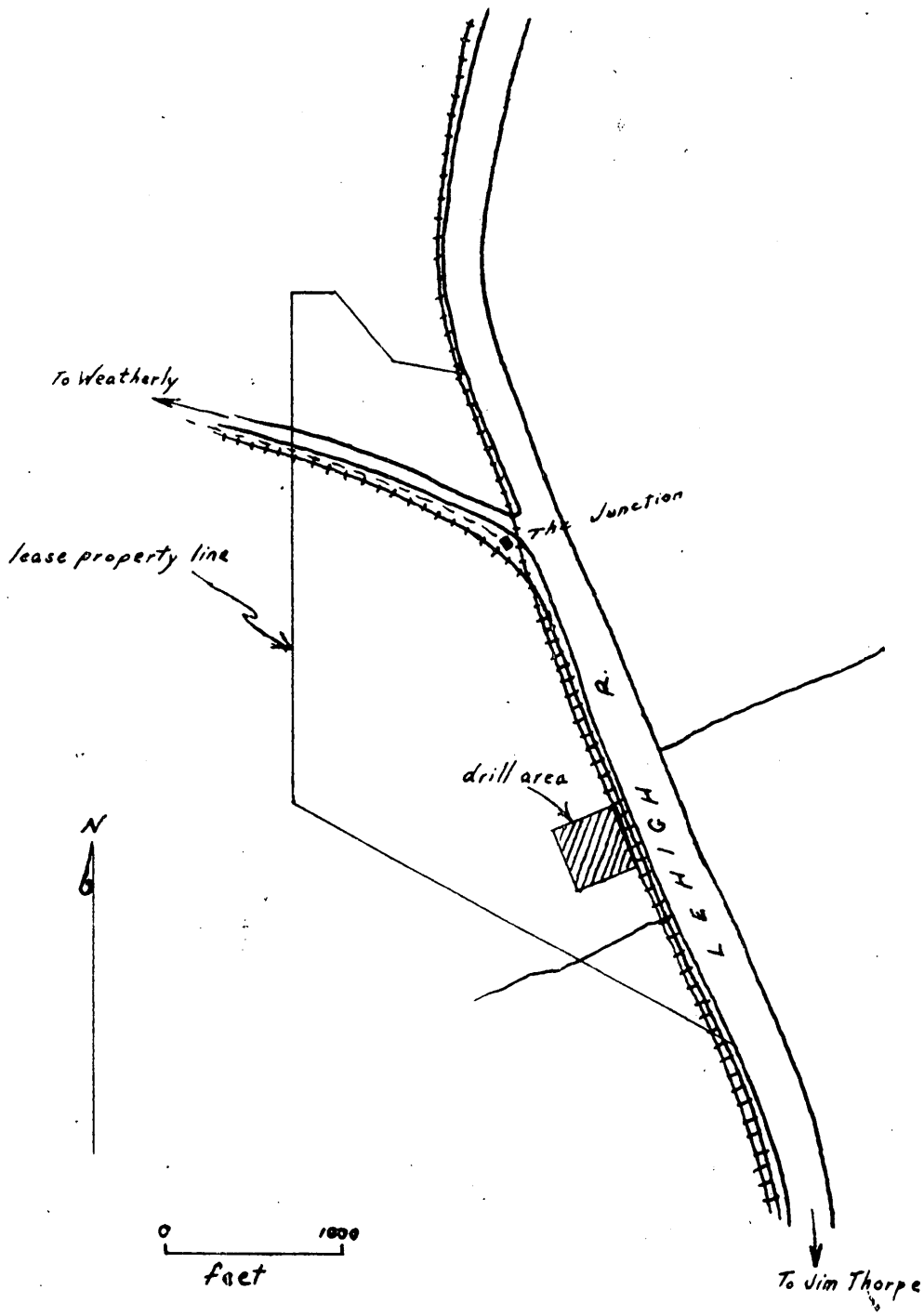

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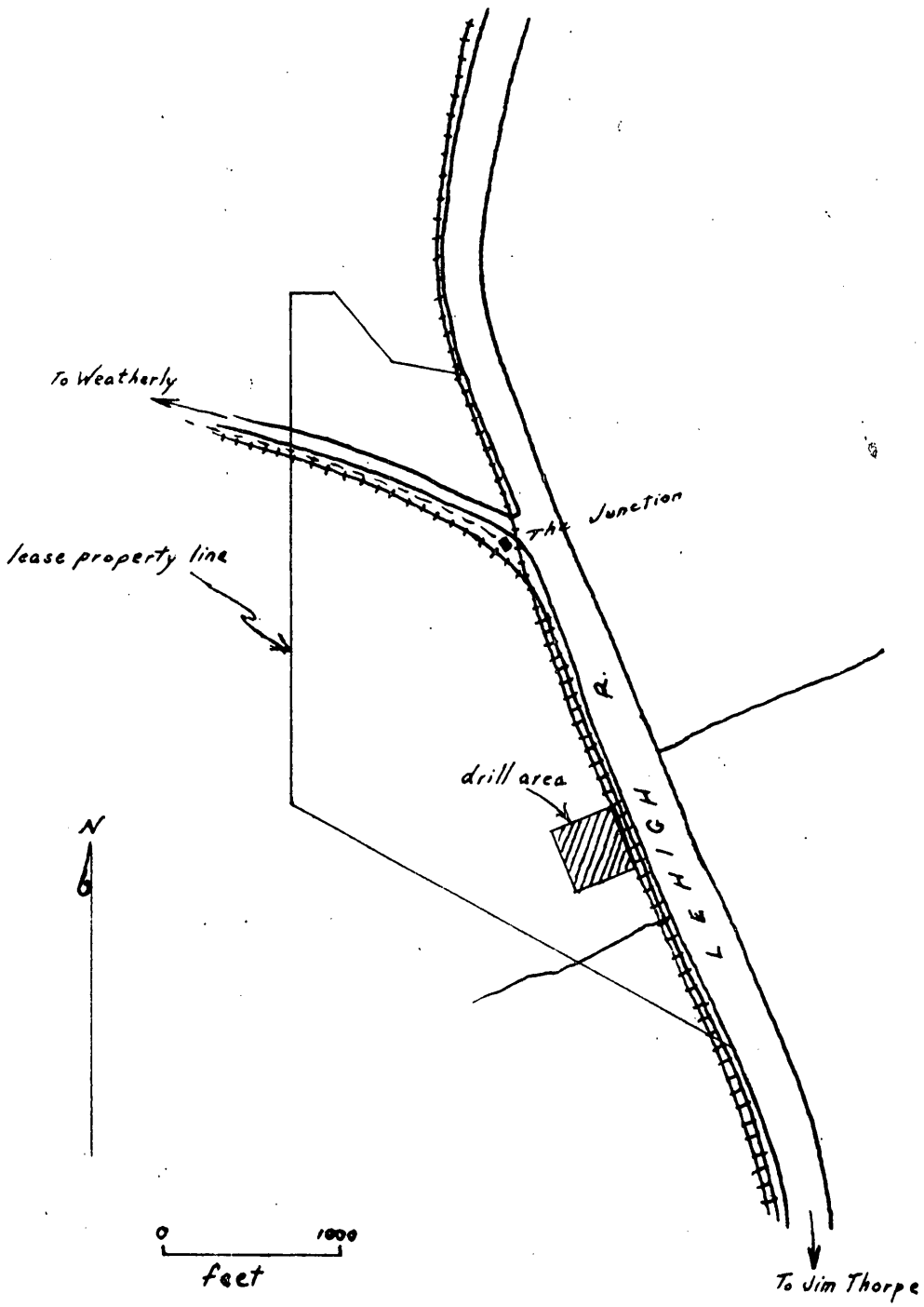
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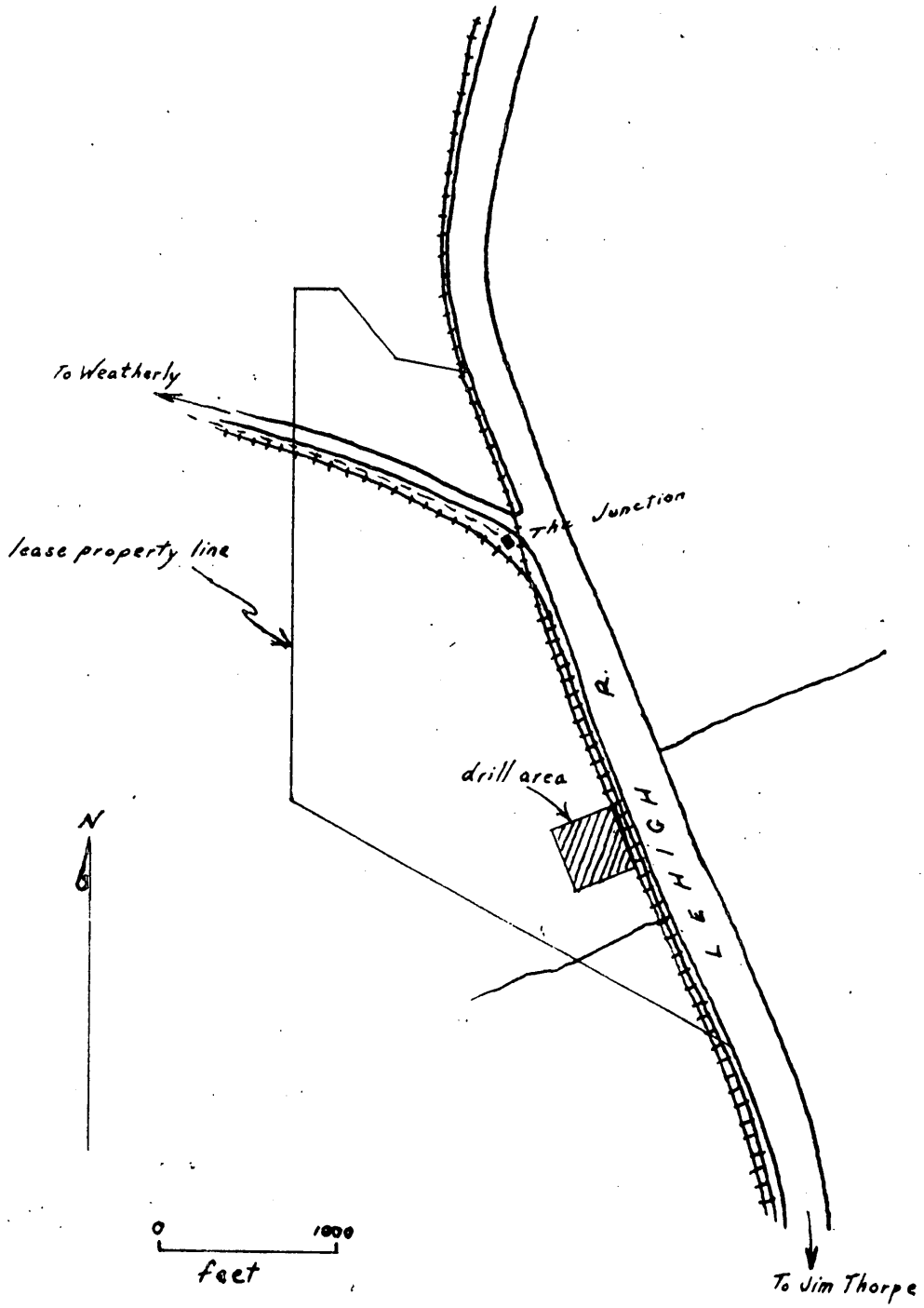

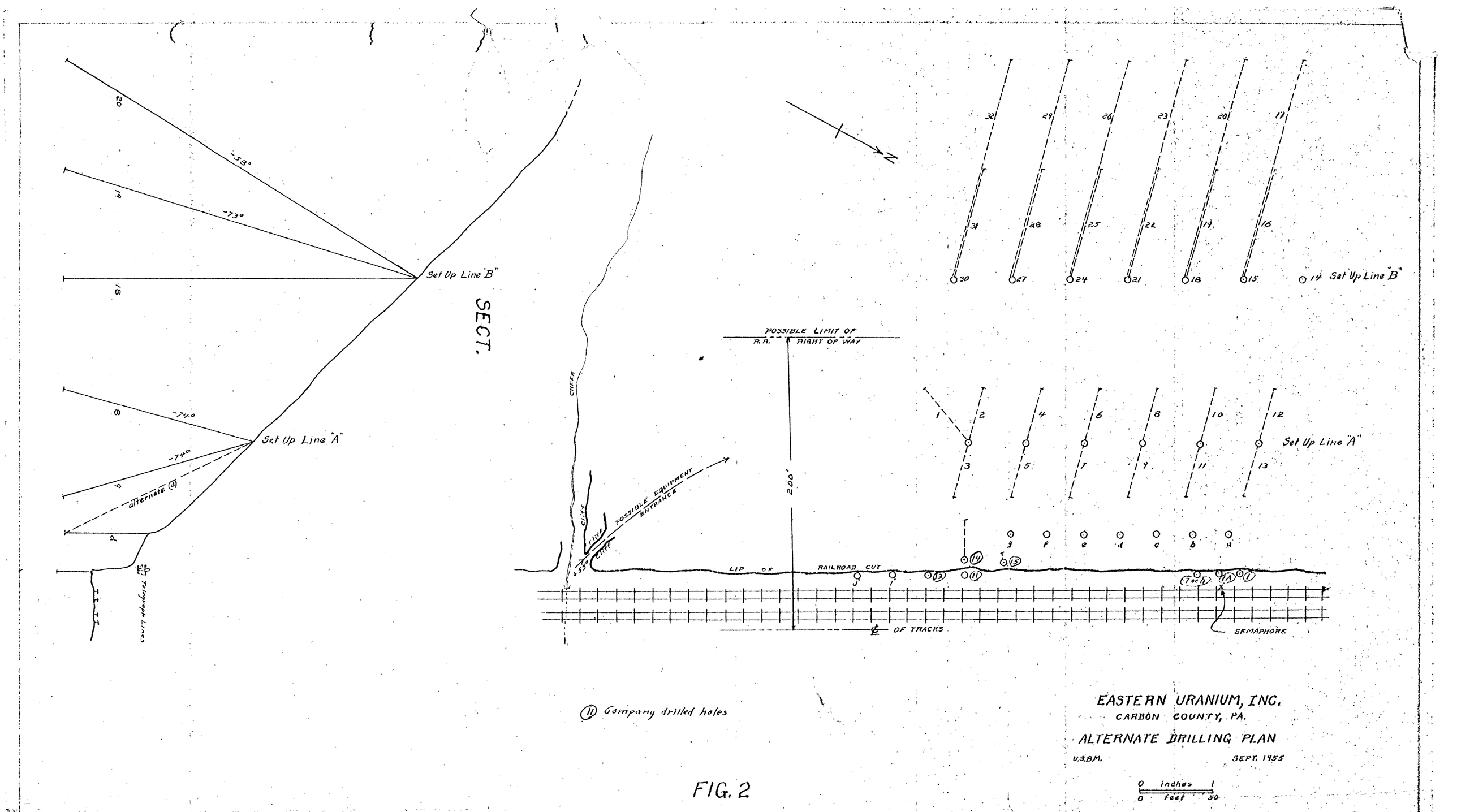

(11) Company drilled holes

EASTERN URANIUM, INC.
CARBON COUNTY, PA.

ALTERNATE DRILLING PLAN

U.S.B.M. SEPT. 1955

0 inches 1
0 feet 50

FIG. 2

(WILKES-BARRE)

PENNSYLVANIA 1:62,500

WAR DEPARTMENT
CORPS OF ENGINEERS, U. S. ARMY

FIRST EDITION-AMS 1

MAUCH CHUNK QUADRANGLE
15 MINUTE SERIES

(POCONO)

(STODDARTSVILLE) WERNETS POND 2.1 MI. ALBRIGHTSVILLE 3.5 MI.

(HAZLETON) NESQUEHONING 3.5 MI. SUMMIT HILL 7.5 MI. CARBON COUNTY LINE 2.2 MI.

U. S. 209 0.5 MI. GILBERT 3.4 MI. (WIND GAP) KUNKLETOWN 3 MI. KLECKNERSVILLE 5 MI. PETERSVILLE 1.5 MI.

(HAMBURG) 750 000 YARDS (SLATINGTON) FRIEDENS 1.1 MI. LOCKPORT 2 MI. (ALLENTOWN)

First Edition, 1943.
Prepared under the direction of the Chief of Engineers, U. S. Army, 1943.
Army Map Service, Pittsburgh and Kansas City units.
Based on U. S. G. S. quadrangle, Mauch Chunk, 1:62,500 (1924).
Horizontal control in part by Pennsylvania State Highway Dept. and Railroad valuation Survey.
Vertical control by U. S. Geological Survey 1924.
Revised from single lens vertical aerial photographs.
Aerial photography - A.A.A. Department of Agriculture, 1938-39.
Polyconic Projection, North American datum.

ROAD CLASSIFICATION 1943

Dependable hard-surface, heavy-duty road.	Loose-surface graded, dry weather road.	U. S. Route	160
Secondary, hard-surface, all-weather road.	Dirt road.	State Route	30

More than two lanes indicated by note along road with tick at point of change. 3 LANE \| 4 LANE

Scale 1:62,500

1 ½ 0 1 2 3 Miles

1000 0 1000 2000 3000 4000 5000 Yards

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

FIVE THOUSAND YARD GRID COMPUTED FROM "GRID SYSTEM FOR PROGRESSIVE MAPS IN THE U. S." ZONE A, U. S. C. & G. S. SPECIAL PUBLICATION NO. 59
THE LAST THREE DIGITS OF THE GRID NUMBERS ARE OMITTED
THE STATE GRIDS ARE INDICATED FOR PENNSYLVANIA ZONE NORTH BY ... TICKS. FOR ZONE SOUTH BY ... TICKS. OUTSIDE THE NEAT LINE AT 10,000 FOOT INTERVALS.
NOTE: OFFICERS USING THIS MAP WILL MARK HEREON CORRECTIONS AND ADDITIONS WHICH COME TO THEIR ATTENTION AND MAIL DIRECT TO THE CHIEF OF ENGINEERS, WASHINGTON, D. C.

7°45' OR 138 MILS — 1°43' OR 31 MILS — MAGNETIC NORTH — TRUE NORTH

APPROXIMATE MEAN DECLINATION 1943 FOR CENTER OF SHEET
NO ANNUAL MAGNETIC CHANGE

Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between GRID NORTH and MAGNETIC NORTH, as plotted on the degree scale at the north edge of the map.

ARMY MAP SERVICE, U. S. ARMY, WASHINGTON, D. C., 112294
1943
REPRODUCED BY 654TH ENGINEER BATTALION
OCTOBER 1943

LEGEND
BRUSH

MAUCH CHUNK, PA.
N4045-W7530/15

C. S. Hammond & Co.
Map Specialists
1 E. 43 St., N. Y. (17) N. Y.

? EWE

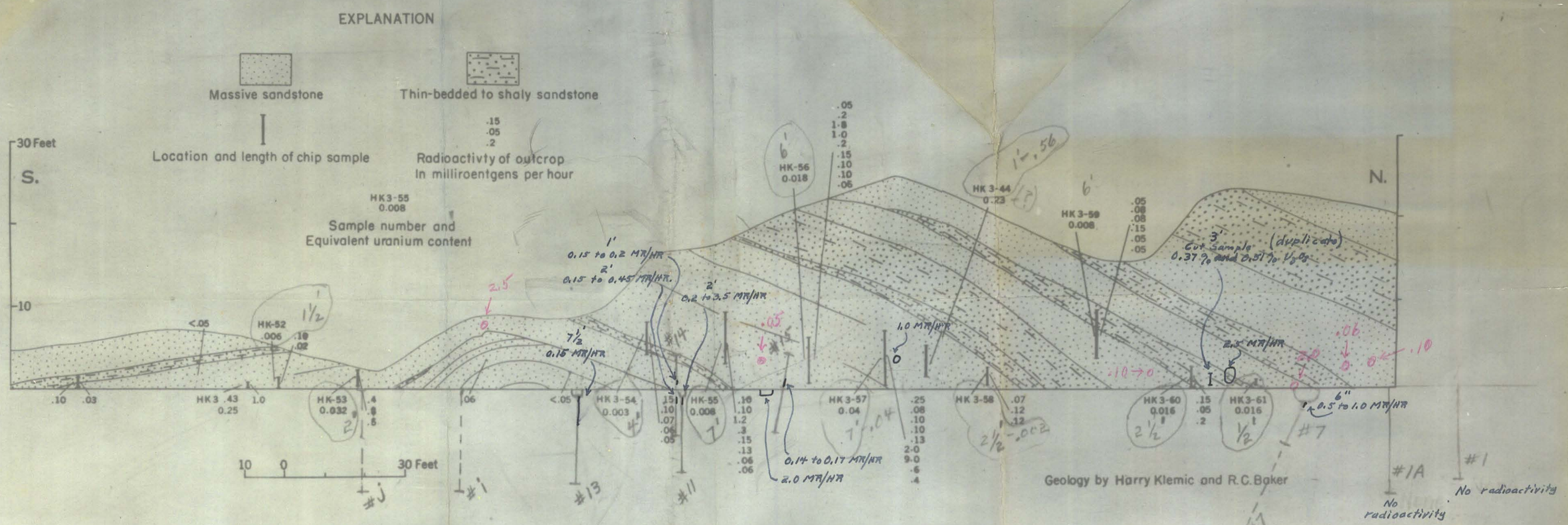

Figure 2.—Sketch of outcrop of uraniferous rock near Penn Haven Junction, Carbon County, Pa.

Sample 45 not on section.

ADDITIONS TO BASE SECT.

— — — Proposed drill holes on section
⊥ Company drilled holes

1½' Length of Sample

(Black ink) Company data in application

Examination data
Background - 0.01 MR/HR
(.10) Radioactivity MR/HR

EASTERN URANIUM, INC.
CARBON County, PA.
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BASE SECT. AFTER U.S.G.S. CIRC. 350
ADDITIONS BY U.S.B.M. SEPT. 1956

FIG. 3

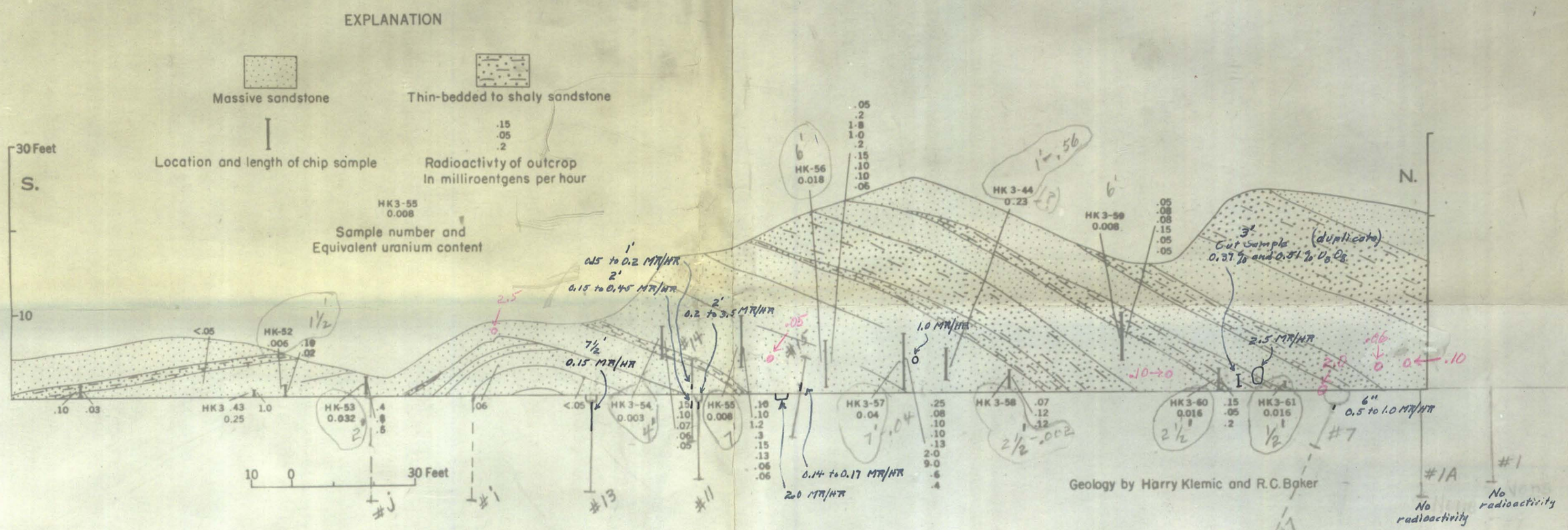

Figure 2. —Sketch of outcrop of uraniferous rock near Penn Haven Junction, Carbon County, Pa.

Sample 45 not on section.

Deepen #7

X semaphore

ADDITIONS TO BASE SECT.

— — — Proposed drill holes on Sect.

I Company drilled holes

(1½') Length of Sample

(Black ink) Company data in application

Examination data

Background – 0.01 MR/HR

(.10) Radioactivity MR/HR

EASTERN URANIUM, INC.
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FIG. 3