MI-044-02

TERRITORY OF ALASKA

DEPARTMENT OF MINES

MI-44-2

REPORT ON DIAMOND DRILLING FOR RADIOACTIVE MATERIAL NEAR CANDLE, NORTHEAST SEWARD PENINSULA

(Bendeleben Quadrangle)

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by

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GENERAL

During the late summer to early winter of 1955, 190 lode claims were located on a radioactive anomaly in the Fairhaven Mining and Recording District approximately 13 miles south of the village of Candle. The original block of claims is located on a ridge called Midway Ridge between two small right limit tributaries of Montana Creek, a westerly-flowing tributary of the Kugruk River. Geographic coordinates of the approximate center of the staked area are 65° 49' N latitude, 162° 08' W longitude. The location is shown on plate 1. Access to the area is by tractor trail from Candle. Small aircraft have been landed at various points near the claims, but the landing strips are short and rough.

Basis for the original staking was a radioactive anomaly located by airborne radiometric work with a Detectron Nucliometer and with scintillation counters. Airborne work at elevations of 50' to 100' in this area by the undersigned during May, 1956, indicates a sizeable area with readings considerably above the background for the general area, highest readings noted being on the order of 0.008 MR/hr.

The original locators in August, 1955, put down several holes with an Industrial Engineering Ltd. Super Pioneer diamond core drill rented from the Department of Mines at Nome and submitted samples to the U.S.G.S. Trace Elements laboratory at College for radiometric determination of equivalent uranium content and later to the Department of Mines Assay Office at Ketchikan for quantitative chemical determination of U_3O_8. One sample, reportedly representing a three foot section from a depth of 35' to 38' in one of the holes, showed an eU content of 0.95% and a quantitative analysis of 1.3% U_3O_8. Another, a five foot section reported to be from 40' to 45' in a second hole showed 0.80% eU radiometrically and a quantitative analysis of 1.1% U_3O_8. Samples from above and below these sections in both holes were on the order of 0.001% to 0.003% eU.

On the basis of these samples and further airborne work, other individuals became interested in the area and located claims or hired others to do so for them.

In May, 1956, a request was received by the Nome office of the TDM from Mr. C. C. Taylor and Mr. R. E. Young, both of Fairbanks, for assistance in conducting a diamond drilling program in the anomalous area. The undersigned visited the area from May 20 to May 29, and from June 13 to June 22, 1956.

DRILLING

The first drilling attempt was made with a Boyles Bros. X-ray drill on the right limit of Montana Creek about 5½ miles up stream from its' confluence with the Kugruk River. There were three factors in choosing this point for the initial hole: first, since the drill was new, it was desirable to test-run it where the water supply was not a problem; second, surface radiometric readings were as good here as any place in the area; and third, it was on open ground near claims held by Young.

After drilling 12' it became apparent that it would be impossible to drill further because of sloughing of the sides of the hole when the drill rod was pulled. It was decided that it would be necessary to use casing to hold the hole through the overburden which consists of blocky, decomposed mica schist and organic debris. Also, in view of poor results on radiometric checks of surface samples, it was decided to center future drilling efforts around the holes drilled in 1955 by the original locators to rule out the possibility of salting, and to hinge any extensive later drilling on the outcome of the first few holes.

Before casing had arrived, it was decided to try drilling with the I.E.L. Super Pioneer rental drill from the TDM at Nome. Three holes in all were put down with this drill, the first two very close to the holes from which the commercial-grade samples were reported to have come during the

1955 drilling and the third adjacent to another hole which was said to have produced a 0.08% U_3O_8 sample.

HOLE #1 Located 3.5' to 4' from 1955 1.3% hole
Total depth 63'
Surface to 55' consisted of broken and decomposed, grey to brown siliceous, micaceous schist.
Solid bedrock was encountered at 55'.
The drill rod was pulled and core barrel was emptied at each 5' interval. Also cuttings pumped to the surface were checked periodically with two scintillation counters.
The 50'-55' sample gave a reading of 0.0085 MR/hr against a background count of 0.0075 in the area.
All other samples gave no response on the scintillators.
Samples from this hole were checked by the U.S.G.S. Trace Elements lab. at College and ran from 0.002% to 0.01% eU.
The 0.01% was from 55'-60'.

HOLE #2 Located 1.5' from 1955 1.1% hole
Total depth 50'
Samples taken at 5' intervals.
No response from any sample.
U.S.G.S. Trace Elements at College reports 0.002% to 0.004% eU.

HOLE #3 Located 3' to 4' from 1955 0.08% sample
Total depth 25'
Samples taken at 5' intervals after the first 5'.
No response from any sample.

After casing arrived, it was decided that a hole should be put down to a depth of 100' with the Boyles Bros. drill; however, in view of the above results, this was attempted more to test the drill, using casing, than to test the ground.

Casing was drilled to 26' after which it was impossible to drill it further. At this point regular drill rod was used through the casing to 43' where thawed, broken ground was encountered and flow of water to the top of the hole was lost. At 47' a bit was lost and an unsuccessful attempt was made to recover it. The section from 47' to 56', the bottom of the hole, was drilled with the Super Pioneer drill. In this hole the only sample obtained from the first 43' was in the form of cuttings pumped out of the hole. This material contained no detectably radioactive material. Between 43' and the bottom no sample was obtained.

In attempting to free the casing, two holes were drilled beside it with the Super Pioneer drill and some sample material was produced in this manner. None of this showed appreciable radioactivity.

Samples of core material and surface rock were submitted by Taylor and Young to U.S.G.S. Trace Elements lab. at College. Maximum eU detected in any core sample was 0.006%. Surface schist from the vicinity of #4 hole where background count was 0.028 MR/hr (high for the area) showed 0.003% eU. Surface samples from the head of Jump Creek, a tributary of Candle Creek heading against the head of Montana Creek, were identified as fine-grained granite and contained 0.008% eU. Another granite containing 0.008% eU was found at the head of Minehaha Creek. These were the highest grade surface samples encountered during the entire trip.

RADIOMETRIC WORK

Several hours were spent in airborne radiometric work with a Detectron Nucliometer south of Candle in the staked area and elsewhere at elevations above the surface of from 50' to 100'. A definite anomaly was noted in the staked area although it was no stronger than in several other areas previously noted on the Seward Peninsula.

The ground surface was checked at many points with a Precision scintillation counter. The one outcropping of bedrock noted was at the confluence of a small, unnamed right limit tributary with Montana Creek. At this point the schist was in contact with a bed of limestone. Strike of the contact and the bedding was N 5° W, dip 70° E. Radiometric readings were slightly higher on the schist than on the limestone although neither rock type showed particularly high radioactivity at that point.

CONCLUSIONS

There appears to be little hope of encountering commercial radioactive material in this area. Previous samples reported to be from drill holes in this area and giving results up to 1.3% U_3O_8 were probably contaminated by foreign material. The anomalous radiometric readings obtained by airborne work appear to be the result of low-grade radioactivity of a large mass of schistose rocks intruded occasionally by small granitic bodies.

From the information available further expenditure for diamond drilling cannot be justified. Assessment work on existing claims and location of more claims would be a waste of time and money.

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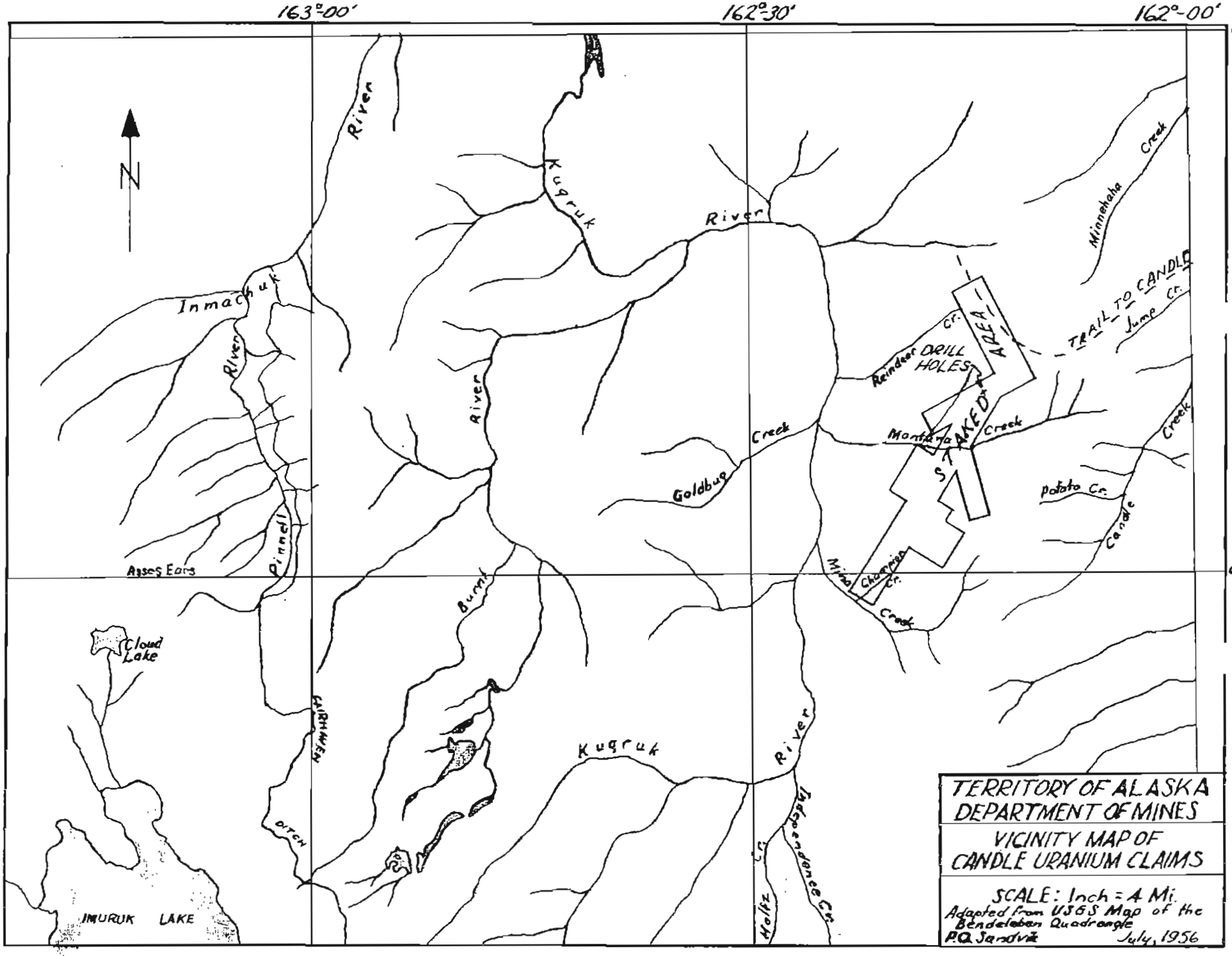
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N
Kugruk River
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Pinnell
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Cloud Lake
IMURUK LAKE
FAIRHAVEN DITCH
Burnt
Kugruk River
Goldbug Creek
Reindeer DRILL HOLES
AREA
TRAIL TO CANDLE
Jump Cr.
Minnehaha Creek
Montana Creek
Potato Cr.
Candle Creek
Chapman Cr.
Mint Creek
Holtz Cr.
Independence Cr.
TERRITORY OF ALASKA
DEPARTMENT OF MINES
VICINITY MAP OF
CANDLE URANIUM CLAIMS
SCALE: Inch = 4 Mi.
Adapted from USGS Map of the Bendeleben Quadrangle
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July, 1956