(14.5-16.0, 13.3-13.6)

64°45'N
145°00'W

PE-059-01

TERRITORY OF ALASKA

DEPARTMENT OF MINES

PE 59-1

REPORT ON THE EXAMINATION OF THE RICKS PROSPECT, KX 59-19

BIG DELTA QUADRANGLE,

ALASKA

by

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ABSTRACT

The Ricks nickel prospect is in the Big Delta Quadrangle near the North Fork of the Salcha River. The nickel-bearing deposit is twenty to forty feet thick, and the outcrop is traceable for eight miles. The assays of five samples taken from the outcrop varied between 0.13 and 0.28 per cent nickel. The nickel in these samples was contained in secondary minerals, and, possibly, a primary orebody of higher tenor exists below the zone of weathering.

INTRODUCTION

As part of its program to furnish aid to prospectors in Alaska, the Department of Mines regularly employs mining engineers to examine mines and prospects. Examinations are made at the request of property owners. In 1954, Mr. Dean Ricks requested that the Department of Mines send an engineer to examine a mineral deposit that he has staked near the North Fork of the Salcha River. In response to his request, an examination was made on September 11, 1954 by Robert H. Saunders, Associate Mining Engineer. This report is written from notes taken during that examination.

LOCATION AND ACCESSIBILITY

The prospect is at 64° 45' N latitude and 145° 00' W longitude. It is in the northeastern part of the Big Delta Quadrangle on the north side of a ridge that separates the drainage of the North Fork of the Salcha River from the drainage of the main part of the

Salcha River. Plates I and II in the appendix show the location of the prospect.

Probably the best route for an access road to the prospect would be from the Richardson Highway up the valley of the Salcha River and up the valle y of the North Fork. The road would be about 100 miles long; the cost would not be great if the road were made suitable for winter use only. The Brinker-Johnson Mining Company completed a gold-dredging program on Caribou Creek in 1952; when the dredge was in operation, a road was bulldozed up the valley of the Salcha River each winter after the ground was frozen, and equipment and supplies were hauled to Caribou Creek on trucks. Caribou Creek is about 50 miles from the highway. Between the highway and Caribou Creek there is one stream (Redmond Creek) that does not freeze in the winter; a temporary bridge was built across that stream each year. First-hand information about freighting to Caribou Creek may be obtained from former officials of the Brinker-Johnson Mining Company and from the Fairbanks truckers that did the freighting for the company.

There is a tractor trail from No Grub Creek to the lower part of Bonanza Creek. That part of the trail that lies in the lower valleys is now overgrown with brush, but the part on the ridges and on upper Bonanza Creek is still plainly visible. This trail could be extended up the North Fork to the mouth of Ricks Creek and up Ricks and Black Bear Creeks to the prospect. It would be passable for crawler-type tractors in summer and winter. Gold Creek and the North Fork near the mouth of Ricks Creek could be forded with tractors except during periods of extremely high water.

Chena Hot Springs (see Plate II) is a resort that is owned by a group of Fairbanks business men. At present it is accessible only by air, but during the next few years the Steele Creek road may be extended to the resort. If this road is extended, perhaps the best route for a road to the Ricks prospect would be by way of Chena Hot Springs.

The main Salcha River is navigable for small boats throughout its length for some distance above the mouth of the North Fork. The North Fork, however, is too shallow for boat travel except perhaps during periods of extremely high water.

At the present time, the prospect can be reached only by travelling on foot. In the winter and early spring, small, ski-equipped aircraft can land on the North Fork 10 to 12 miles from Ricks' cabin. During the summer it requires about two-and-one-half days of foot travel to reach the prospect from the air-strip at Caribou Creek.

PHYSICAL FEATURES AND CLIMATE

The valley of the North Fork of the Salcha River is 1400 to 2000 feet above sea level, and the higher of the surrounding hills rise to more than 5000 feet. Bedrock exposures are numerous on the hilltops and ridges, and there are a few exposures along some of the streams. The topography is characterized by smooth, rounded contours except at the tops of hills and ridges, where steep talus slopes and rock outcrops lend a more rugged appearance.

Spruce trees grow in the lower valleys, and spruce suitable for mine timbers is available within a few miles of the prospect.

The climate in this part of Alaska is typically sub-Arctic with short, warm summers and long, cold winters. The average annual snowfall in the region is fifty inches, most of which falls in late December and January. The streams are usually frozen from mid-October to late May.

PROPERTY AND OWNERSHIP

Twenty-four claims have been staked on the prospect. Twelve claims were staked jointly by Dean Ricks and Ed Sellick in 1939, and twelve claims were staked by Dean Ricks in 1940. Ed Sellick is no longer living, and it is likely that his estate has not been settled.

During this examination no attempt was made to find the claim corners or to trace the claim boundaries.

The claim location certificates are recorded in Volume XXII of the records of the United States Commissioner at Fairbanks. The names of the claims are listed in Table I.

GEOLOGY AND MINERAL DEPOSITS

The general geology of the region has been described by J. B. Mertie, Jr. in U. S. Geological Survey Bulletin 872, THE YUKON-

TANANA REGION, ALASKA.

A group of metamorphic rocks of pre-Middle Ordovician age underlies most of the area drained by the North Fork. On the lower slopes of the ridge at the head of Black Bear Creek, the rocks in this group are schists. At about 4300 feet altitude there is a bed of metamorphosed limestone, which is probably part of this same group. Above the limestone there are dark-colored, granular, igneous rocks that Mertie has called Devonian basic intrusives; these rocks constitute the top of the ridge above the limestone bed.

The limestone has a buff color, which may have been caused by weathering. In the limestone there are many fractures that are filled with calcite and dolomite, and between the fractures there are small, irregular masses of one or more minerals that resemble garnierite.

The strike of the deposit varies from S 80° E at the western end to N 60° E at the eastern end of the outcrop, roughly parallel to the contour of the ridge, so that the outcrop is at about 4300 feet altitude throughout its length. The dip is southward into the ridge.

The outcrop of the limestone bed is partly hidden by talus slopes, but it can be traced for about eight miles. During this examination a four-mile-long segment of the outcrop was traversed, and the two-mile length of outcrop at each end of this segment was scanned through field glasses. At both ends, the outcrop terminates because of changes in topography rather than from any changes in geology, and, according to Dean Ricks, no attempt has been made to trace the deposit beyond the ends of the outcrop. The limestone is 20 to 40 feet thick, and the garnierite(?) appears to be uniformly scattered throughout the length and width of the outcrop.

Physically, the deposit appears to have characteristics favorable for large-scale mining. The many, filled fractures should make the limestone shatter readily when blasted. The igneous rock overlying the limestone appears to be free from any structural planes of weakness, so it should permit underground openings to be kept open with little artificial support.

SAMPLES AND ASSAYS

Five samples were taken during this examination, and they were assayed at the Territorial Department of Mines Assay Office at Ketchikan, Alaska. The results of the assays are shown in Table II, and the locations where the samples were taken are shown on Plate II. Samples 19 and 20 were taken 150 feet apart, but the scale of the map is too small to show this. Sample 19 was tested for cobalt, lead, and copper; none was present. No primary nickel sulfides could be identified in the samples.

The deposit is not exposed well enough to permit cutting channel samples across the full width, therefore, the samples consisted of chips taken from exposed parts of the outcrop.

Care was taken to make the samples as nearly representative as possible under the circumstances.

SUMMARY

Although this deposit is large enough to be mined by large-scale, low-cost methods, it would have to be richer than the samples that were taken during this examination in order to be mined profitably.

The nickel in the samples was contained in one or more secondary nickel minerals. There are two different ways in which these minerals could have been formed. First, the nickel originally could have been a constituent of the overlying basic igneous rocks, and it could have been dissolved, carried downward in solution, and redeposited in the limestone. No nickel has been found in the igneous rocks, but probably little or no prospecting has been done in those rocks. Second, the nickel could have been deposited in the limestone in the form of primary nickel minerals, and weathering or hydrothermal processes could have altered those minerals in place to form the secondary minerals now present. If the secondary minerals have been formed in place by weathering, the outcrop of the deposit may be lower in tenor than the unaltered part of the deposit, because some nickel may have been leached from the outcrop by the weathering processes.

Probably the mode of origin of the nickel minerals could be determined by microscopic studies of the nickel-bearing rock in thin-sections. If such studies showed that the secondary nickel

minerals had been formed from primary minerals by weathering, then it would be necessary either to sink shafts or to drill holes to intersect the deposit below the zone of weathering in order to find if the unaltered part of the deposit is minable.

TABLE I

CLAIMS STAKED ON THE RICKS PROSPECT

Name of Claim	Instrument No.	Date of Discovery	Page on Which Recorded in Volume XXII
Nickel Queen	84797	9/25/39	321
Nickel King	84798	9/25/39	321
Yellow Dog	84799	9/25/39	322
Big Boy	84800	9/25/39	322
Rabbit Foot	84801	9/25/39	323
War Baby	84802	9/25/39	324
Admiral	84803	9/25/39	324
Emma	84804	9/25/39	325
Bear	84805	9/25/39	326
Carbiok	84806	9/25/39	326
Moose	84807	9/25/39	327
Ram	84808	9/25/39	327
Number 1	86254	5/4/40	463
Number 2	86255	5/4/40	463
Number 3	86256	5/4/40	464
Number 4	86257	5/4/40	465
Number 5	86258	5/4/40	465
Number 6	86259	5/4/40	466
Number 7	86260	5/11/40	467
Number 11	86261	5/11/40	467
Number 12	86262	5/11/40	468

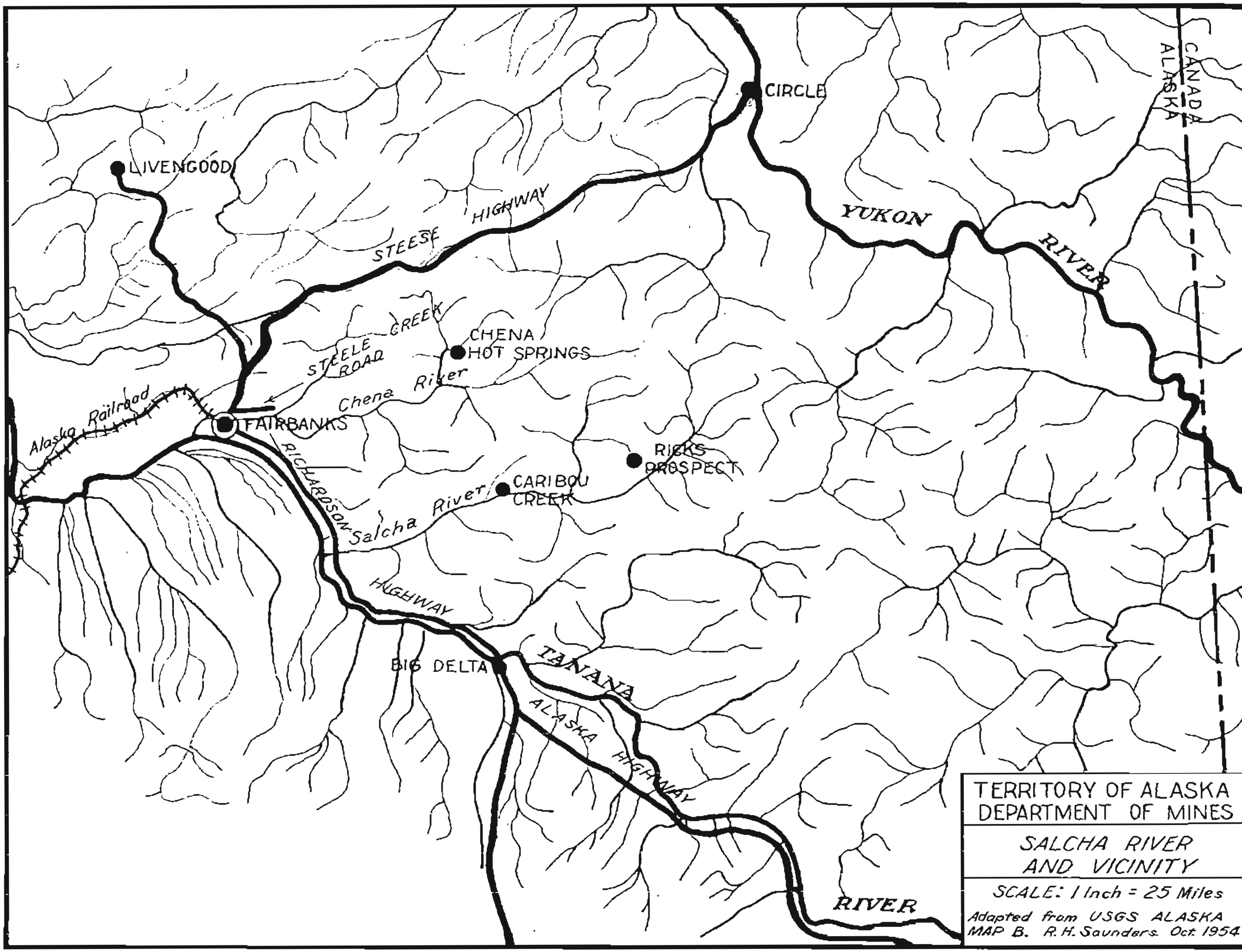
TABLE I
(continued)

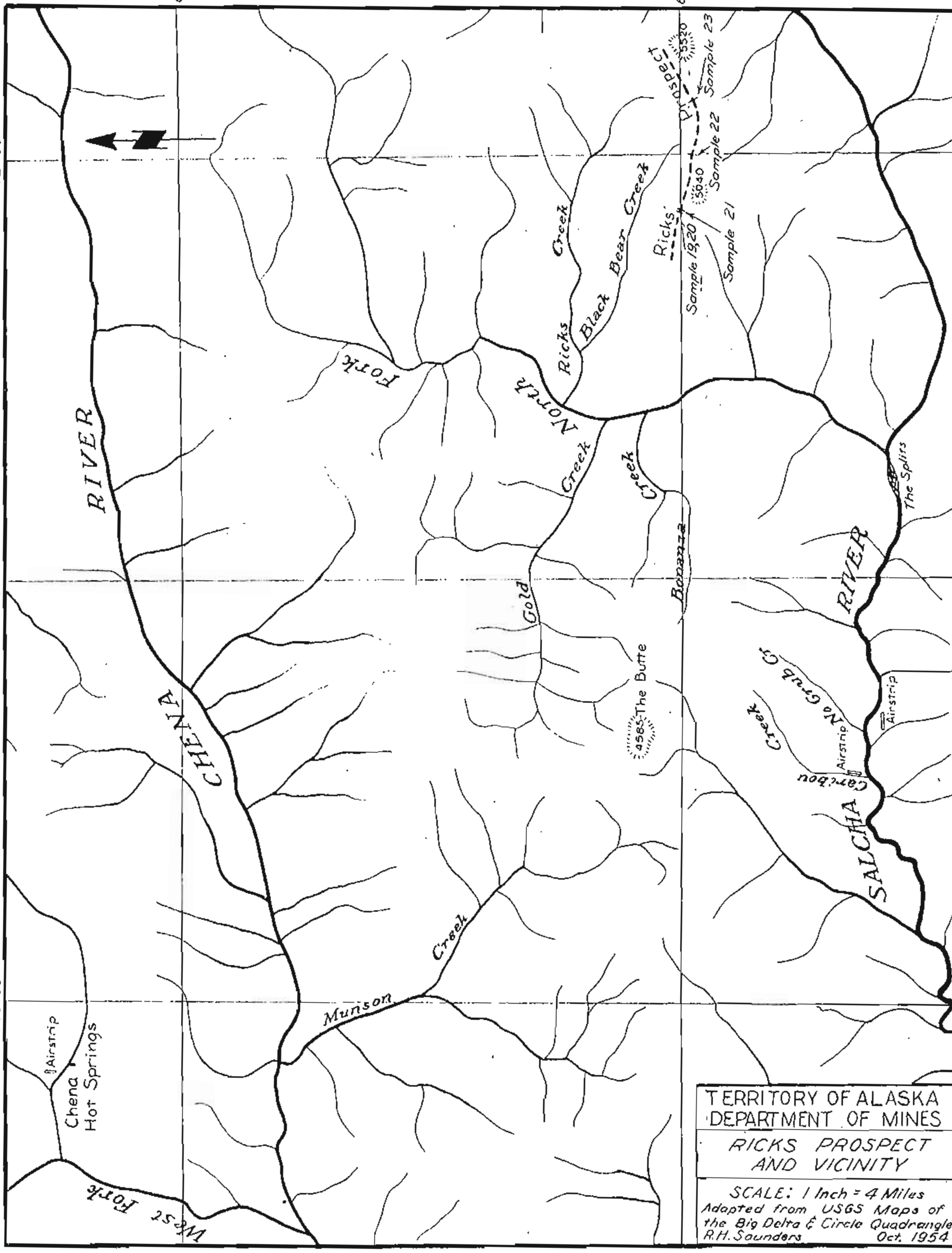
Name of Claim	Instrument No.	Date of Discovery	Page on Which Recorded in Volume XXII
Number 13	86263	5/11/40	468
Number 14	86264	5/11/40	469
Number 15	86265	5/11/40	470

TABLE II

ASSAYS OF FIVE SAMPLES

Sample Number	Per Cent Nickel
19	0.28
20	0.19
21	0.18
22	0.13
23	0.15


TERRITORY OF ALASKA
DEPARTMENT OF MINES
SALCHA RIVER
AND VICINITY
SCALE: 1 Inch = 25 Miles
Adapted from USGS ALASKA MAP B. R.H. Saunders Oct. 1954
CANADA
ALASKA
CIRCLE
LIVENGOOD
YUKON
RIVER
STEESE HIGHWAY
STEELE CREEK
STEELE ROAD
CHENA HOT SPRINGS
Chena River
FAIRBANKS
Alaska Railroad
RICHARDSON HIGHWAY
RICKS PROSPECT
CARIBOU CREEK
Salcha River
BIG DELTA
TANANA
RIVER
ALASKA HIGHWAY



TERRITORY OF ALASKA
DEPARTMENT OF MINES
RICKS PROSPECT
AND VICINITY
SCALE: 1 Inch = 4 Miles
Adapted from USGS Maps of
the Big Delta & Circle Quadrangles
R.H. Saunders
Oct. 1954
65°00'
64°45'
145°00'
145°30'
146°00'
Ricks Prospect
5520
5040
Sample 23
Sample 22
Sample 21
Sample 19 20
Black Bear Creek
Ricks Creek
North Fork
Gold Creek
Bonanza Creek
The Butte
4585
CHENA RIVER
SALCHA RIVER
The Splits
No Grub Cr.
Caribou Creek
Airstrip
Munson Creek
Chena Hot Springs
West Fork