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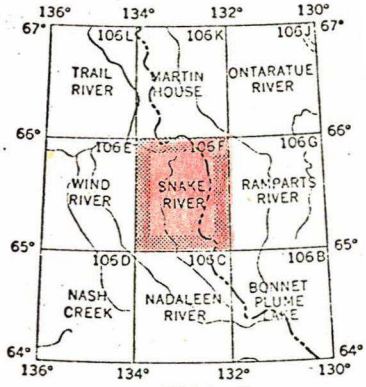


Index to Adjoining Sheets

SNAKE RIVER
106F

NTS 106 F 2,3,6,7

#1 Crest Exploration Limited (about 65°15'N, 133°00'W)
(Iron)

1966, 1965

References: Bamber et al. (1963); Green and Godwin (1963, pp. 15-18; 1964, pp. 16-17); Green (1965, pp. 22-23; 1966, p. 21).

No work was done on the property in 1966.

(Iron)

NTS 106 F 2,3,6,7

#1 Crest Exploration Limited (about 65°15'N, 133°00'W)

1964

References: Bamber et al.(1963); Green and Godwin (1963, pp. 15-18; 1964, pp. 16-17).

Crest Exploration Limited, a wholly-owned subsidiary of the Standard Oil Company of California, holds 433 claims and 94 fractional claims in Yukon and 190 claims in the Mackenzie Mining District of Northwest Territories covering a major sedimentary iron deposit. The property is accessible from a 4,300 foot airstrip (65°21 1/2'N, 133°20'W) in the valley of Snake River, which is connected to the main camp (about 9 miles southeast of the airstrip) by road. While the camp was in operation transportation was supplied by a company aircraft operating from Whitehorse, Y.T. The nearest lake (65°28'N, 133°49'W) suitable for use by float-equipped aircraft is about 20 miles northwest of the camp.

During the summer of 1963, a crew of up to 70 men was engaged in diamond drilling, sampling, claim surveys, and geological mapping. Until mid-August 1964 a crew of up to 9 men, supported by one helicopter, was engaged in mining 5 additional 2-ton bulk samples for metallurgical tests and in claim tagging and posting "J" forms. During the latter period, there were a large number of visitors to the property, including representatives from a Japanese Trading Company and several North American steel companies.

The deposit consists of unaltered hematite and jasper iron-formation occurring near the base of the Rapitan Group, a thick sequence of conglomeratic mudstone of probable Precambrian age. Most of the iron-formation occurs within a stratigraphic interval of about 400 feet, and, in the better part of the deposit, the upper 250 feet consists essentially of iron-formation with a few thin beds of clastic sediments. The iron-formation contains 40 to 50 per cent iron. A potential tonnage of many billions of tons is present and one open pit location alone is estimated to contain well over 1 billion tons, one half of which is completely exposed.

#1 Crest Exploration Limited (about: 65°15'N, 133°00'W)

Reference: Green and Godwin (1963, pp. 15-18)

1963

Crest Exploration Limited, a wholly-owned subsidiary of the California Standard Company, holds 527 iron claims in the Yukon and 190 claims in the Mackenzie District of the Northwest Territories.

These claims, most of which were staked in the spring of 1962, cover a major sedimentary iron (hematite) deposit.

In March 1963, Proctor Construction Company Limited moved equipment, under contract, to the Snake River area. A gravelled, 4,300 foot airstrip (65°21 1/2'N, 133°20'W) was constructed parallel to the Snake River and is connected to the main camp (about 9 miles southeast of the airstrip) by a road. Transportation to the property was supplied by company aircraft operating from Whitehorse and chartered aircraft from Mayo, Y.T. Up to five light helicopters were employed on the property.

From early June to early October 1963, a crew of up to 70 men was employed on the property. Work carried out during the season consisted of diamond drilling, sampling, claim surveys, and limited geological mapping. Four diamond drills recovered a total of about 10,000 feet of mainly AX core. Holes, generally between 200 and 600 feet long, were occasionally extended to 800 feet. About 120 tons of samples were shipped from the property, including a 52-ton bulk sample sent to the Mines Branch of the Department of Mines and Technical Surveys for beneficiation tests.

During the summer there were a large number of visitors to the property including a delegation from the Japanese Iron and Steel Federation.

NTS 106 F 2,3,6,7

#1 Crest Exploration Limited (approx. 65°15'N, 133°00'W)

1962

Early in the summer of 1962, Crest Exploration Limited, a wholly-owned subsidiary of the California Standard Company, staked a major sedimentary iron deposit in the Snake River area. During the 1962 season, access to the property was by float-equipped aircraft and helicopter. The nearest lake (65°28'N, 133°48'W) suitable for use by fixed-wing aircraft is some 20 miles northwest of the staked area.

The company holds 493 claims in the Yukon and an additional 369 claims in the Mackenzie Mining District of the Northwest Territories. The Yukon claims, staked as iron claims as defined by the Yukon Quartz Mining Act, are approximately three times the area of the standard mineral claim. A party of up to 50 men was employed in the staking in late winter and early spring. Knowledge of the staking did not become public until G.G.L. Henderson, who had been appointed an Emergency Mining Recorder under the terms of the Yukon Quartz Mining Act, delivered 464 claim applications to the Mining Recorder at Mayo, Yukon, on June 25, 1962. During the remainder of the field season, a smaller party of approximately 15 men carried out further geological mapping and systematic sampling of the deposit. In addition, one diamond-drill hole was put down near 65°14'N, 132°56'W, where the iron-formation lies at a shallow depth beneath the valley floor.

In the fall of 1962, Crest Exploration retained Canadian Bechtel Limited to do a feasibility study of the deposit, covering mining, beneficiation, transportation to tidewater, and marketing.

The iron-formation, composed essentially of hematite and jasper, is up to 400 feet thick. It occurs near the base of a thick sequence of conglomeratic mudstone, which is about 3,000 feet thick within the staked area. The unit thickens to the west and in the Rapitan Creek area, some 10 miles southwest of the staked area, was considered tuffaceous and referred to as the Rapitan Volcanics by oil company geologists. The name Rapitan Group will be used in this report.

In the staked area, the basal conglomerate of the Rapitan Group rests with slight angular discordance on a sequence of buff, orange, and grey-weathering shale and a carbonate. The latter may correlate with the MacDougal Group, of probable Cambrian age, described by Hume (1954) near Norman Wells in the District of Mackenzie. The Rapitan Group is overlain with angular unconformity by a thick sequence of massive grey-weathering carbonate. The base of the carbonates is marked by a thin orange band, which at one point consists of approximately 30 feet of alternating bands of thin carbonate and conglomerate. Fossils of Ordovician and Silurian age were collected from what is believed to be similar carbonate to the southwest (Green and Roddick, 1962). If the suggested correlations are correct the Rapitan Group is probably of Cambrian age. However, fossils are lacking in the underlying rocks correlated with the MacDougal Group and, in the senior author's opinion, these rocks may correlate with rocks to the west, which are believed to be Precambrian (Green and Roddick, 1962). In any case, the Rapitan Group appears to be of either late Precambrian or Cambrian age.

The main structures of the area are open, northwest-trending folds with gentle dips. Superimposed on these are west- and northwest-trending thrust faults. Locally, steep dips are associated with both folds and faults.

The following section was roughly measured through the Rapitan Group, including the iron-formation, near 65°12'N, 133°09'W:

Top	Thickness in feet Unit	Total from base
Dark maroon weathering, conglomeratic mudstone. About 10 per cent pebbles with most less than 1 1/2 inches, but some to 3 inches in diameter	750*	2787*

Top	Thickness in feet Unit	Total from base
Maroon, with some green, conglomeratic mudstone, cross-bedding locally very apparent; a few beds of conglomerate	1800*	2037*
Red, iron-rich(?) mudstone	100*	237*
Iron-Formation (125 feet)		
Mainly maroon mudstone, with about 10 per cent jasper-rich conglomerate, occurring in beds to 6 inches. Jasper in angular fragments, generally less than 1 inch, but some 6 inches in diameter	10	137
Mainly fine hematite, in fairly pure beds to 3 inches, and in beds to 6 inches containing scattered lenses of jasper elongated to 1 inch. A few jasper-rich beds to 3 inches	17	
About half, brown-weathering limy material, the remainder about equal amounts of jasper and hematite with some limy material	3	
About one-third pure hematite, one-third hematite with jasper nodules to 1 1/2 inches, one-third jasper bands to 2 inches. Contains a few beds to 1 foot thick, but most are 4 inches or less. A 9-inch band of silty material occurs near the base	7	
Maroon weathering mudstone without hematite or jasper	3	
Mixed jasper and hematite; about one-third hematite in bands to 3 inches, one-third hematite with jasper nodules, and one-third pure jasper with a few beds to 6 inches thick, but most less than 2 inches	13	
Brown-weathering siltstone, poorly exposed	4	
About one-half jasper occurring in beds to 3 inches thick, and also as a large lens about 3 feet by 7 feet interbedded with hematite bands to 4 inches thick containing some jasper nodules	13	

Top	Thickness in feet Unit	Total from base
Hematite-cemented jasper conglomerate, which grades upward into a maroon pebbly mudstone, the latter in sharp contact with an overlying jasper band	8	
Hematite, and hematite with jasper nodules; bands about 3 inches thick near the base and thickening upwards	40	
Silty material with jasper bands and some hematite-cemented material	7	
Covered	12	12
Base of section. Underlying beds maroon silty mudstone.		

*Approximate only.

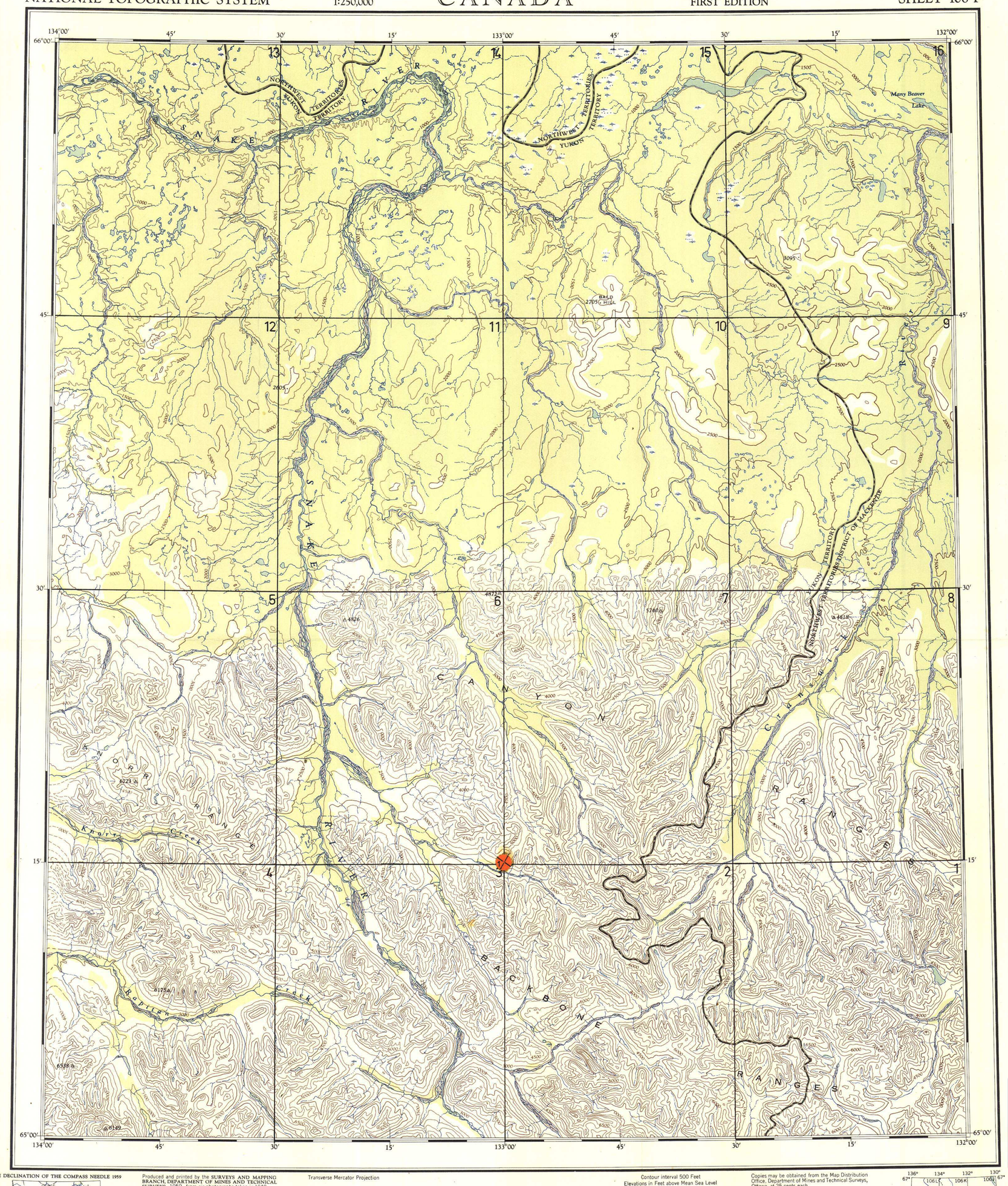
Where it was observed, the iron-formation consisted of unaltered fine-grained hematite and jasper with a few interbands of maroon silty mudstone similar to the remainder of the Rapitan Group. No leached or weathered material is known. No assays are available, but, in the senior author's opinion, the iron-formation, exclusive of mudstone interbands, may approach a 50 per cent iron content.

With the exception of the periphery, most of the area staked is underlain by the iron-formation and the total reserves of the deposit probably exceed 30 billion tons of iron-formation. Much of this has a considerable depth of cover but large tonnages, at least 5 billion and perhaps as much as 10 billion, are exposed at or near the surface in some of the wider valleys.

Rocks of the Rapitan Group, with or without the iron-formation, may outcrop beneath the late Cambrian or younger(?) unconformity both to the west and southeast of the Snake River area. To the west, the younger carbonates generally rest on rocks considered to be of Precambrian age (Green and Roddick, 1962) but along the Tatonduk River, just west of the Yukon-Alaska boundary, Mertie (1932, pp. 369-392) has described ferruginous rocks, which may be equivalent to the Rapitan Group. To the southeast, rocks of the Rapitan Group, including some iron-formation, outcrop around Little Dal Lake (62°42'N, 126°41'W) and may occur intermittently between the latter point and the Snake River area.

NTS & Occur. Number	Reference	Name of Occurrence	Date	Lat.& Long.	Metals	Host Rock (with age)	Alteration, Gangue and Control	Remarks
SNAKE RIVER 106-F								
106F2-1		Crest		65°15'N 133°00'W	Fe	Fe. fm. jasper and mudstone conglom. Pre-Camb.	Sedimentary	Most within strat. interval of 400' - Fe - formation 40-50% Fe probably over 30 billion tons Fe- fm.

NATIONAL TOPOGRAPHIC SYSTEM 1:250,000 **CANADA** FIRST EDITION SHEET 106 F



MINERAL SHOWINGS LOCATION MAP

LEGEND:

LODE DEPOSITS

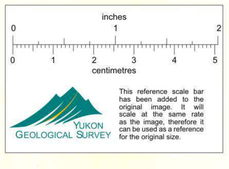
- MINERAL PRODUCER (PAST, PRESENT OR FUTURE)
- PROSPECT
- MINERAL OCCURRENCE (SMALL OR NO INFORMATION AVAILABLE)

COLOR CODE:

- GOLD
- SILVER
- COPPER
- LEAD
- ZINC
- TUNGSTEN
- MOLYBDENUM
- IRON
- BARITE
- NICKEL
- ASBESTOS
- ANTIMONY

PLACER DEPOSITS

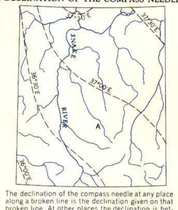
- GOLD
- TIN



YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

THE DECLINATION OF THE COMPASS NEEDLE 1959



The declination of the compass needle at any place along a broken line is the declination given on that broken line. At other places the declination is between those given on the neighbouring broken lines; thus at the place marked **A**, the declination is between 36°50′E and 37°50′E. The declination of the compass needle is decreasing 6 minutes annually.

Produced and printed by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1959, from air photographs taken in 1949, 1953 and 1954.

Transverse Mercator Projection

SNAKE RIVER

YUKON TERRITORY-NORTHWEST TERRITORIES

Scale 1:250,000

1 Inch to 4 Miles Approximately

Miles 5 0 5 10 15 20 Miles

Kilometres 5 0 5 10 15 20 25 30 Kilometres

Contour interval 500 Feet
Elevations in Feet above Mean Sea Level
North American Datum 1927

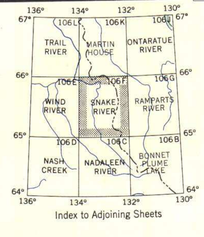
Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa, at 25 cents each.

REFERENCE

Wagon or winter road	
Trail or portage	
Boundary: provincial	
Village or settlement	O
Post office	P
Building or cabin	•
Horizontal control point	△
Astronomical position	⊕
Spot elevation (in feet)	.2905

REFERENCE

Streams:	
intermittent or dry	
dry river bed	
Sand, gravel or mud	
Marsh or swamp	
Intermittent lake	
Contours:	
elevation	2500
depression	2500
approximate	2500
Forest	



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SNAKE RIVER
106F