MAR 19700006: LAKE ATHABASCA

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SLAVE RIVER - LAKE ATHABASCA AREA

NORTHEASTERN ALBERTA, CANADA

QUARTZ MINERAL EXPLORATION PERMITS
Nos. 104, 105, 107, 108, 142 and 156

for

NORTH CANADIAN OILS LIMITED

by

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SURFACE SURVEY REPORT

INTRODUCTION

The purpose of this survey was to conduct a comprehensive ground traverse check by hand scintillometer and surface and drill core sampling of all airborne radiometric anomalies indicated by the Roving Exploration Services Ltd. gamma ray spectrometer survey conducted during the summer 1969 field season for North Canadian Oils Limited over the several Quartz Mineral Exploration Permits held in the Fort Chipewyan area of Northeast Alberta. This surface traverse survey was conducted in the field between July 7, to August 8, 1970 by the following personnel -

John D. Hale	-	Geologist
Sam Moore	-	Guide
Robert Graham	-	Student Assistant.

The outfitting was contracted for by Pine Creek Construction Ltd., Fort Chipewyan, Alberta, a private company owned and operated by Mr. John Inglis. The outfitting consisted in supplying all food and camping equipment, guide, boats and fuel. This bush survey would not have been possible without the cooperation and able outfitting and guiding of John Inglis and Sam Moore. Robert Graham was an able and resourceful assistant. Any further field work in this region by North Canadian Oils Limited would benefit by the use of Pine Creek Construction Ltd. and local personnel for bush surveys or prospect development.

The basic mode of travel from Fort Chipewyan, operating base, to the field was by a yawl-type boat with two outboard Mercury motors, both for open water travel with the smaller motor for shallow water near-shore and landings. All field traverses were made on foot. Inland access to the Permits located along the north shore of Lake Athabasca was made by boat landings at several points along the coast from the camp. Such access by boat did not necessitate any prospect camp move. The proximity of all Permits to water and boat landings did not require the use of aircraft. No overnight bush camps were made; however, at least one

overnight pack-camp would have conserved walking and allowed more drilling time on the Slave River prospect.

The field equipment consisted of two hand scintillometers, one packsack diamond core drill, two Brunton compasses, prospector's hammers, maps and aerial photographs. The two scintillometers were SSL-2 models designed and constructed by Mr. Jack Sherratt of Sacker Scientific Ltd., Edmonton, Alberta. These scintillometers record radiation in counts per minute (cpm), operate on flashlight batteries with a "squealer" and incorporate all advantageous features for field use, such as positive battery connections, calibration screw, no outside wire connections, three needle recording scales and are compact with a carrying case. These scintillometers were found most satisfactory for field use and no faulty operations were experienced.

The packsack diamond core drill was purchased new from Truco Canada Limited, North Bay, Ontario, and is termed Packsack "XRD" Diamond Drill. This drill operates on a 2-cycle gasoline engine, takes a 7/8-inch diamond core and is provided with a 3-gallon water pressure tank and hose for circulating fluid. The weight of the drill is 26 pounds and total weight of drill and all accessories is about 40 pounds. The drill fits conveniently into a large packsack but the water pressure tank is rather awkward to carry. The drill did not prove completely satisfactory, mainly because all the rocks were very hard and the coring time was very slow (not more than 2 feet per hour). Nevertheless, the drill itself, core recovery and transportation by packsack were all satisfactory. The diamond core bits did not core as fast as originally anticipated or described in the "XRD" core drill brochure. Of course, coring was prohibited whenever circulation of the drilling fluid to surface failed to return because of fractures. The reason for equipping such a drill was for obtaining sample material for assay below the very thin or shallow weathered zone, particularly on the high (Thorium) radiation anomaly on the Slave River prospect that had been delineated during the 1969 summer airborne survey using an Exploranium Model DGRS-1000 differential gamma ray spectrometer. It was presumed that possible soluble Uranium minerals might be present shortly below the surface in association

with Thorium with only Thorium radiation being emitted from the surface rock exposures.

Two Brunton compasses were used for location and traverses, using a 27°E magnetic declination (for 1970) as given on the NTS Fitzgerald, Alberta (74M) map.

Alberta Department of Lands and Forests (Forest Surveys Branch) "Forest Classification" maps were used. These were enlarged 200 per cent and used for basic land survey grid location, using critical topographic features (mainly lakes) for fiducial points. The field traverses and mapping were recorded entirely on Alberta Department of Lands and Forests aerial photographs, 1949-1951, 1:40,000 series (scale: 1" = 3333'). The culture, streams and lakes, etc., from the aerial photographs had been used to construct the "Forest Classification" maps, the base for which had been constructed in Ottawa (see: Land Plat Notes). The aerial photographs were poor in places over the Lake Athabasca permits, areas being obscured by clouds, cloud shadows, water glare, haze or fog, sand dune glare along the coast and some distortion. These imperfections together with the disagreement between the Federal and Provincial grid base handicapped traverse location to some extent. The Alberta grid survey is used entirely through this report, and the Federal base survey disagreement is indicated on the Report maps. All field information was transferred from the normal scale aerial photographs (scale: 1:40,000, 1" = 3333') to photograph enlargements (200%; 1:20,000:; 1" = 1667') printed from the original films by the Technical Division of the Alberta Department of Lands and Forests.

SLAVE RIVER, Northeast Alberta, Canada —
Quartz Mineral Exploration Permit Nos. 107,108 and 156:

The field party loaded-out from Fort Chipewyan on July 7, 1970 and travelled by boat northwards down the Riviere Des Rochers to the mouth of the Peace River and thence on down-stream on the Slave River to Charley Spirit's cabin (SW Sec. 1-118-9W4, Q.M.E. 108), shortly up-stream

from Johnson's Landing, and set up camp. The field party moved out on July 14, 1970; total time in field 8 days, on Permits 6 days. No inclement weather occurred during the Slave River field camp.

The low water levels along the Fort Chipewyan-Lake Athabasca-Athabasca River delta and on down the Slave River were quite noticeable from both the after-spring run-off and the affects of the Peace River dam in north-east British Columbia.

The country is flat-lying at elevations of about 700 to 800 feet. The hard granitic rocks are highly glaciated and rise abruptly from the muskeg, swampy Slave River oxbows and overflow areas. Inland the granitic rocks are separated by incised glaciated grooves and channels. Generally the rock separations reflect faulting or extreme jointing, the glaciation gouging more selectively within the mylonized and brecciated fault zones.

The structural trend of this area (or "grain of the country") is east-west. The box-U swing of the Slave River in Township 118 reflects faulting and the coalescence of a westerly "horsetail" convergence of faulting from the east. Mylonized zones were noted in the field, the most prominent of which is an east-west lineament along the north side of Snake Lake (named by the writer), along the south line of Sec. 4-118-8W4. The Snake Lake area appears to be extremely faulted with major faults striking into the box-U swing of Slave River, and also minor slice-faults and diagonal cross-faults. An apparent crushed zone is noted on the aerial photographs within Sec. 33-117-8W4 and is so labelled on the air-photo map.

The granitic rocks of the Slave River Q.M.E. Permit Nos. 107, 108 and 156 area are all classified as granitized sediments with colors from white-grey to brick-brown red with pegmatitic facies, relic sedimentary structures, and fine to micro-fine grained black biotite. The original sediments are judged to have been iron-rich arkosic sandstones, quartz sandstones and mudstones. The biotite is more prevalent approaching the major fault zones.

Radiation is associated with the reddish colored rocks, and the white-grey rocks are consistently barren of radiation (background radiation is 800-1,000 cpm, assumed as being 1,000 cpm). The high Thorium airborne radiation area is located as that area along the north side of Snake Lake adjacent to the fault zone. The field location of the Thorium radiation area is about one mile east of the airborne location, but this is readily accounted for in airborne survey locations. The sample assays show practically nil Uranium (including drill core holes) over all of the Slave River prospect, while the Thorium assays (as high as 0.05% by Core Lab) may account for the high airborne Thorium anomaly. (See: Sample Descriptions and Notes and Assay Reports and Notes).

It is reported by uranium prospectors that airborne gamma ray spectrometer or scintillometer surveys will show a high radiation recording when approaching a steep cliff or hill, part of which may be caused by the sudden change of surface elevation, and the plane or helicopter not being able to maintain the constant above surface elevation or adjust immediately to the surface elevation change. Also the approach to the Slave River radiation anomaly would be over Snake Lake with very little radiation from the water surface. The highest assay for Thorium (0.05%) by Core Lab is from Sample No. 20, located immediately next to the lake north shore-line at the base of the escarpment practically within the fault zone.

The Slave River prospect is considered as of very low to nil uranium content.

LAKE ATHABASCA, Northeast Alberta, Canada —

Quartz Mineral Exploration Permit Nos. 105 and 142:

The field party was resupplied and loaded out from Fort Chipewyan for the Lake Athabasca permits on July 15, 1970 and travelled by boat northeast along the north side of Lake Athabasca to a protected bay on the south side of Shelter Point and set up camp (SE Sec. 19-113-5W4). The field party moved out on July 24, 1970, includes one day to Fort Chipewyan for supplies; total time in field 10 days, on Permits 7 days. No inclement weather occurred during the Shelter Point field camp; however a heavy wind made for a full day's stay at Fort Chipewyan because of high waves on Lake Athabasca.

The water level of Lake Athabasca is about 700 feet or slightly lower because of the affects from the Peace River dam in northeast British Columbia. Travel by boat on Lake Athabasca can be dangerous in even moderate winds, as swells build up and could cause swamping of the low water-level rear-ends of the motor-powered boats. Boat landings can also be hazardous during lake swells and shore-line breakers.

The country is flat lying, highly glaciated, grooved and scoured. The coast-line is rugged and abrupt from Fort Chipewyan to the camp site at Shelter Point, thence the coast-line trends northward with windward sandy beaches of Athabasca sand but with only minor and rare sand dunes along the coast. At the very northeast corner of Q.M.E. Permit No. 105 a very prominent sand bar is present (Sand Pt.) with a lagoon behind the upper windward side of the sand bar. This feature is not the result of faulting but is influenced by the change of strike of the coast-line, loose Athabasca sand supply from glacial outwash, northeast winds, and the easterly proximity of Burntwood Island, influencing tides and currents along the north shore of Lake Athabasca within this area.

The structural trend of this area is northeast-southwest and is fault controlled by narrow ribbon-like slices. Cross or diagonal faults or slices are conspicuous by their absence. One long, straight-line, northeast-southwest fault zone trend or rift apparent on the aerial photographs (not visited in the field) is present just west of Hammer Lake (named by the writer). This straight-line lineament is characterized by

relatively low-lying topography, about 800 to 1,000 feet wide, infilled with glacial outwash and glacial lakes and with a very pronounced Lake Athabasca coast-line squared reentrant. It may be reasoned that this fault trend could be projected southwest into Lake Athabasca along the northerly coast-line toward the Chipewyan Settlement. To the northeast the lineament becomes vague and lost on the aerial photographs due to an overwhelming amount of glacial outwash; however, an elongated narrow glacial esker is in line with the northeast projection of the fault trend. The esker may have been a consequence of glacial drainage along the glacial grooving of incompetent mylonitic rocks within the fault zone.

Q.M.E. Permit No. 142 was covered by a one-day's field traverse and was found to be practically all covered by glacial outwash with long eskers, laminated kames and vivid air-photo, glacial fluted, outwash lines. Minor granitic rock outliers occur, raised slightly above the level of glacial outwash. No radiation was noted in any of the few granitic outliers and consequently, no samples were collected for analysis.

Q.M.E. Permit No. 142 was applied for on September 11, 1969, for additional coverage beyond Q.M.E. Permit No. 105, as well as adjoining the two portions of Q.M.E. No. 105. The airborne radiation survey conducted over Q.M.E. Permit No. 105 during the summer of 1969 had indicated several radiation areas. The airborne radiation survey had not covered any of the Q.M.E. Permit No. 142 area. The verification of glacial moraine-outwash surface material and the very few Precambrian outcrops allow aerial photograph interpretation of the remainder of Q.M.E. Permit No. 142 as dominantly glacial outwash with some muskeg and very few outcropping Precambrian granitic rocks.

The traverses over Q.M.E. Permit No. 105 encountered an old prospected area located southwest of Hammer Lake and a trail-road leading into an old diamond drill camp on the south side of Hammer Lake. The prospected area consisted of a surface-blasted area with apparently two diamond drill holes. Eighty to one-hundred old full core boxes (25' core/box) or approximately 2,000'-2,500' diamond coring were found along

the east side of the surface-blasted area. The old drill holes appear at about 30° angle to horizontal. The surface-blasted area radiated at 36,000-40,000 cpm (counts per minute) and locally as high as 44,000 cpm with full mass effect. The background radiation was about 1,000 cpm. The radiation area within about 10,000 cpm is 200 feet N30°±E and 76 feet wide. The area could extend farther northeast to include and go beyond Sample No. 34 and also extend toward Hammer Lake to the northeast with smaller amounts of radiation.

The overall country rocks are granite gneiss and are commonly injected with syenite pegmatites varying to a pegmatitic syenite. The granitized sediment lithology is not as conspicuous as the rocks over the Slave River prospect but is still present. The rocks of the Hammer Lake radiation area are syenite pegmatites with contorted layers of black biotite floods. A yellowish crusty mineral coats some of the rocks, especially the high radiation areas. This yellow mineral is tentatively determined as Autunite, a hydrous phosphate of uranium and calcium. The assays show both a Uranium and Thorium content to the rocks of the radiation area. The combined radiation effects of both Uranium and Thorium probably contribute to the high scintillometer count. There appears to be some association of radiation to the biotite flood layers, and the thorium content may be associated with the biotite as Thorite ($ThSiO_4$ - thorium silicate). However, all of the contorted flood biotite layers are highly etched by chemical weathering, giving differential grooves within the contorted laminated biotitic rocks. The Uranium content and radiation is directly associated with the yellow crusty surface material. (See: Sample Descriptions and Assays).

Several diamond drill core holes were made, and the samples are described and assayed.

The Hammer Lake radiation area is pegmatitic and appears to be associated with the northeast-southwest faulting, characteristic of the area and rather intense (by air-photo) in the area of the radiation anomaly. This faulting is all a part of the large rift zone described before, located shortly west of Hammer Lake and plotted on the air-photo maps.

The old prospecting was probably conducted by New Delhi-Mines Ltd. in about 1953 (See: Reference Item No. 7).

An Area of Interest for further Uranium prospecting by rather detailed diamond core drilling to at least one-hundred-foot depths is given as —

Township 113, Range 6, W4th Mer.:
NE Section 8,
NW Section 9,
NE Section 9,
SW Section 16,
SE Section 17; Total 800 acres.

LAKE ATHABASCA, Northeast Alberta, Canada —
Quartz Mineral Exploration Permit No. 104

After being resupplied again the field party left Fort Chipewyan on July 25, 1970 with two boats, picked up equipment that had been cached because of high wind on the trip to Fort Chipewyan and then became wind-bound on the beach about three to four miles north of Sand Pt.. The boats were too heavily laden with fuel and all other supplies, including the diamond core drill, to proceed further in the windy cloudy weather. Camp was set up on the beach. All rocks at this camp area are meta-volcanics, tuffs and agglomerates of basaltic material mixed and intercalated with quartzite phases. All of July 26 was spent wind-bound at the beach camp-site. In the early morning of July 27th the beach camp was packed and the boats proceeded to Fidler Point, and a camp for the survey duration was set up for Q.M.E. Permit No. 104 operations (NW Sec.27-116-3W4). The surface traverse survey of Q.M.E. Permit No. 104 was completed, and the field crew returned to Fort Chipewyan on August 8, 1970; total time in field 15 days, on Permit 12 days. Rain in the late afternoon prevented a full day's operation for two days. The guide returned to

Fort Chipewyan one day for supplies during the Q.M.E. Permit No. 104 survey. It was also found necessary to conserve the fuel for the outboard motors by walking along the coast to the points of entry for inland traverses over near-camp anomalous airborne radiation areas. Also near-camp radiation areas were reserved for traverse on windy days when Lake Athabasca would be in high waves and swells. Otherwise the boat was invaluable for reaching the portions of Q.M.E. Permit No. 104 that were at a distance northeast from camp toward Greywillow Pt..

Q.M.E. Permit No. 104 contains as many as 12 airborne radiation anomalies. All of these anomalies, as mapped by Roving Exploration Services Ltd., were checked in the field by surface traverses with the hand scintillometers. Some of these anomalies were actually not valid anomalies. The Roving maps are plotted on "Gamma radiation above background", and in areas where the background is extremely low over muskeg, lakes, or glacial outwash the small normal background radiation of granitic rocks becomes an anomaly. It is interesting to note that the glacial outwash areas are rather expansive and support only a sparse but evenly spaced growth of jack-pine, as though the soil nourishment is insufficient for any added growth. It would appear from this indicated low mineral content of the soil (at least for tree growth) that soil sampling for mineral prospecting would not be advisable.

The pack drill was not used; the field time was spent in traversing and checking all of the several airborne radiation anomalies rather than taking drill core samples in one localized area.

The aerial photographs vary from poor to good in quality, clarity and useability, as described in the Introduction. The discrepancy between the Federal and Provincial survey map bases for Q.M.E. Permit No. 104 is also described in the Introduction and under Land Plats. It was very difficult to keep well located over this Permit because of the air photos and the lack of lakes or water fiduciary points. Frequently the traverses had to be adjusted when a good locateable landmark was encountered. Sam Moore, guide, was most helpful in traversing through thick bush, muskeg, over beaver dams and locating landmarks. As usual a zig-zag type of traverse course was followed. More evidence of wild

game was noted over this Permit than in the other two areas.

The northeast portion of Q.M.E. Permit No. 104 and southwest to about Whitesand Point is a broad variable band of glacial outwash. Multiple shore-line flutings, sand bars and lagoonal remnants are present along the north shore of Lake Athabasca with rather high sand dunes adjacent to the beaches. The beaches are clean white, very fine grained, quartz Athabasca sand with localities of very well rounded quartz cobbles. Shallow water extends out from the shore for over a hundred yards. All of the Athabasca sand is of glacial origin, and there is no evidence of in-place outcropping Athabasca sandstone.

Gneissic rocks outcrop along the northeast portion of the coast, and these rocks are highly injected and contorted with feldspathic pegmatites. Such outcrops are very noticeable at Cypress Point where the rocks are highly polished from the waves and wind and sand. In general the rocks of this Permit appear somewhat more metamorphosed than the previous rock outcrops over Q.M.E. Permit No. 105 and the Slave River Area. Inland subtle evidences of sedimentary relic structures may be noted to still express the presence of granitized sediments. It is only along Fishing Creek at the Sample No. 54 locality that extreme reddish granitic rocks are present, possibly of some iron-rich basalt volcanic derivation. Locally along the south Fidler Point coast a reddish feldspar, very coarse crystalline, pegmatite is in outcrop. At this pegmatite locality and along the coast for a relatively short distance the phenomena of transition of granitized sediments to an arkosic, pebbly, coarse grained sandstone, with boudinage lumpy stratification, may be observed and traced on outcrop (See: Photo Map Nos. 1 and 2). This section is described below.

The country rocks are essentially granites, granite gneiss, interpreted granitized sediments with syenite phases that develop commonly to syenite pegmatites, a feldspar-rich pegmatite with some quartz but only little to nil black biotite. North and north-northwest inland from Whitesand Point these pegmatitic rocks show splotchy yellow colorations on the smooth glaciated surfaces (very slightly weathered and very hard), which color passes into an apple-green color in about one-sixteenth to one-eighth of an inch from the surface. This mineralization shows

gamma ray radiation at 8,000 to 10,000 cpm and locally to 20,000 cpm maximum. The scintillometer responds very suddenly to the radiation from this mineralization and is tentatively determined by the writer as - Autunite (yellow), a hydrous phosphate of uranium and calcium, and Uranospathite (green), a hydrated uranyl phosphate. The assays show practically nil Thorium; consequently, all of the radiation is from Uranium minerals. Inasmuch as the Q.M.E. Permit No. 105 (Hammer Lake) radiation was complemented by almost half from Thorium, the 8,000 to 20,000 maximum cpm count Q.M.E. 104 compares generally to the 30,000-40,000 cpm count (Q.M.E. 105) with comparable assay quantities of Uranium.

The structural grain (faulting) of the area is a northeast-southwest trend subordinate to a dominating westerly fault system. It appears that all of the faulting structure over Q.M.E. Permit No. 104 is related directly to the Allan Fault that trends north-south and is present as a rather wide fault zone (about one mile) in the bay just west of Lapworth Point, which is the second bay west of Fidler Point. (See: Reference Item No. 5). The fault trends noted in the field and particularly on the aerial photographs portray a clockwise circular twisting motion which could involve thrusting as well as lateral motion. The Allan Fault zone was not visited in the field but is evident on the aeromagnetic maps as a low magnetic trend (from mylonized rocks) and on the aerial photograps by lineaments and photo tones.

Roving Exploration extended the airborne radiation spectrometer survey westerly across the Allan Fault zone into Range 4, West 4th Merician, as requested. However, no radiation anomalies were evidenced on any of the extended survey or associated with the Allan Fault zone.

It would appear that the Allan Fault is dominantly a right lateral fault, and is traced by Godfrey (1958) as a significant major fault zone from the north shore of Lake Athabasca northward into the Northwest Territories. The fault structure of Q.M.E. Permit No. 104 is in contrast to that of Q.M.E. Permit Nos. 107, 108 and 156 and Q.M.E. Permit Nos. 105 and 142, which are east-west and northeast-southwest, respectively. The Allan Fault is a major dividing trend of geologic provinces in the

There appears to be no or very little fault association with the high Uranium (by assay) radiation areas located northeast of Fidler Point and north of Whitesand Point. The yellow and green Uranium mineralization appears disseminated throughout the syenite pegmatite facies and associated intimately with the large feldspar crystals. There is no evidence of any veinlets. The main area measures 200 feet north-south and 170 feet N75°W. Several other areas in the north Whitesand Point area and along the Lake Athabasca coast measure some 50 feet by 50 feet, approximately.

Along the east side of the bay between Fidler Point and Lapworth Point the rocks outcrop and may be inspected in detail along the coast-line. (See: Photo Map Nos. 1 and 2). Going northerly from Fidler Point the following outcrops may be observed -

1. granite gneiss with pegmatitic contortions;
2. fault zone or two east-west trending minor fault lineaments (aerial photograph);
3. Pegmatite-gneiss contorted contact zone;
4. Pegmatite facies, large red feldspar crystals, 3,000 + cpm radiation, broken; Sample No. 43.
5. Mylonized fault zone, broken brecciated, crumbly, gouged; old prospector's trench, no mineral showing; no pegmatitic injections or quartz stringers; radiation westerly from fault = 800 to 1,000 cpm.
6. Granitized sediment (arkose), completely recrystallized; at about 150 feet north becomes gradational to less granitized to granitized baked to ironstone baked to baked sandstone, all within 300 feet; no faulting observed in field or on aerial photographs, only a gradational transitional change from granitized sediment to an arkosic sandstone; to north along ridge is pegmatitic granite, locally gneissic;
7. Arkosic sandstone, pinkish tan, coarse grained with scattered pebbles, boudinage and lumpy stratification, strike N30°W and 50°E dip (into shore); no contact metamorphism, no increase in biotite at transition zone; much "shingle" tabular rock debris on shore-line.

It is proposed that this arkosic sandstone is a facies of the Tazin group or series of Archean or Proterozoic age (much younger than the Athabasca sandstone). (See: Reference Item No. 3). These sediments, including some that are very iron-rich from basaltic flows or derivation, were deeply buried and granitized by dynamic action along with syenite injections and assimulations. Pegmatites and associated lit-par-lit injections closed the syenite and granitization phase. Faulting occurred distinctly separated from the granitization and syenite phase, as no quartz veins or mineralization are associated with the mylonite zones (only thin quartz, pressure veinlets characteristic of mylonite zones). The Uranium and Thorium may have been derived from these very old sediments recycled and digested into the syenite pegmatites.

The drill hole prospecting performed along the westerly trending Fishing Creek area fault according to Reference Item No. 7 was by Goldfields Uranium Ltd. and reported pitchblende. No mineral showings or radiation are evident in the old cores sampled for Sample No. 54. Local residents report that this drilling was done in 1954 and that there are several other diamond drill holes west of the Sample No. 54 locality. The geology for the Sample No. 54 diamond drill core hole appears good, having been drilled along a significant fault trace and outcropping red-brown granitic rocks. However, the faulting is apparently not related to any mineralization.

An Area of Interest for further Uranium prospecting by rather detailed surface blasting, scintillometer gridding and diamond core drilling to at least one-hundred-foot depths is given as —

Township 117, Range 3, W4th Mer:

NW Section 1,	SW Section 11,
NE Section 2,	SE Section 11,
NW Section 2,	NW Section 12,
NE Section 11,	SW Section 12,
NW Section 11	Total 1,440 acres.

SUMMARY and REMARKS

Two indicated low-grade Uranium mineralization areas have been outlined by surface traverse checks with hand scintillometers from the several airborne spectrograph radiation survey anomalies. These areas are given as —

Hammer Lake, Q.M.E. Permit No. 105;

Section 9, Twp. 113, Rge. 6, W4 Mer.; radiation 30,000 to 40,000 cpm (B.G. 1,000± cpm) locally as high as 44,000 cpm; with yellow Autunite mineralization; assays average 0.064% Uranium (U_3O_8) and 0.03% Thorium (ThO_2), as high as 0.153% Uranium in assay sample and 0.265% Uranium in a selected spot sample.

Fidler Point, Q.M.E. Permit No. 104;

Section 11, Twp. 117, Rge. 3, W4 Mer.; radiation 8,000 to 10,000 cpm and locally as high as 20,000 cpm (B.G. 1,000± cpm); with yellow Autunite and green Uranospathite mineralization, assays average 0.055% (Core Lab) and 0.065% (Loring Lab) Uranium and only a trace of Thorium.

Though this Uranium mineralization is of a low grade, there is a sufficient concentration of the Uranium (more than 0.05% by weight) to require reporting these two deposits to the Atomic Energy Control Board, P. O. Box 1046, Ottawa, Canada.

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staining are apparently associated with only the granitized sediments as country rock.

The yellow staining is tentatively determined by the writer as -- Autunite, a hydrous phosphate of uranium and calcium (same as present at Q.M.E. 105 surface blast area, Sample No. 26). The green coloration existing inwards from the yellow surface coloration is tentatively proposed by the writer as - - Uranospathite, a hydrated uranyl phosphate.

It may be that the uranium content of the syenite pegmatites is derived from the old Archean sediments that were granitized and then injected and redigested of uranium and phosphorus from the host rocks by the syenite pegmatites.

The granitic rocks of Q.M.E. 104 may be colloquially referred to as "hot granites".

The diamond drill prospecting conducted at the Sample No. 54 locality was probably performed by Goldfields Uranium Ltd., as reported on the G.S.C. Map 1045A-M1 ("Uranium in Canada"), Locality 42, Fidler Point (pitchblende). Local residents report several other diamond drill holes west of the Sample No. 54 locality. It is estimated and reported that most of this diamond drilling occurred during 1954. There are also reports that prospectors and/or geologists have entered the Fidler Point bush area with pack-sack drills. No evidence of recent entry was observed.

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ASSAY REPORTS and NOTES

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Date: September 11/70

Sample	Uranium (U_3O_8%)	Thorium (ThO_2%)
1	ND	0.01
2	ND	0.01
3	ND	0.01
4	ND	0.02
5	0.009	0.01
6	ND	0.01
7	0.001	0.02
8	ND	0.02
9	0.001	0.01
10	ND	0.03
11	ND	0.01
12	ND	*-0.01
13	0.001	0.03
14	0.002	0.03
15	0.001	0.01
16	ND	0.02
17	0.001	0.01
18	0.001	0.03
19	0.007	0.02
20	0.001	0.05
20A	0.001	*-0.01
21	0.007	0.03
22	ND	*-0.01

Composite of Sample 20 and 20A

Molybdenum (Mo)	0.001%
Molybdenum as MoS_2	0.002%

Note: Uranium - ND - Less than 0.001%
Thorium *- = Less than

REFERENCES

REFERENCES

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   Surveyed by: Roving Exploration Services Ltd., Calgary, Alberta, between June 16 and July 8, 1969.
   Report written by: Mr. John T. Cook, President and General Manager of Roving Exploration Services Ltd. and Professional Geologist (Alberta).

2. A report covering the Roving Exploration Services Ltd. Report (Reference No. 1) and submitting recommendations therefrom, entitled ——
   "Lake Athabasca Area, Northeastern Alberta, Canada; Quartz Mineral Exploration Permits Nos. 103 to 108, incl. and 142; North Canadian Oils Limited".
   By: John D. Hale Consulting Ltd., November 24, 1969.
   Report written by: Mr. John D. Hale, Professional Geologist (Alberta).

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10. Geological Survey of Canada Economic Geology Series No. 16 (Second edition), "Canadian Deposits of Uranium and Thorium", by A. H. Lang, J. W. Griffith, and H.R. Steacy, 1962.

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SAMPLE DESCRIPTIONS and NOTES

SAMPLES

(Note: cpm = counts per minute of gamma ray radiation)

SLAVE RIVER, Northeast Alberta, Canada —

Quartz Mineral Exploration Permit Nos. 107, 108 and 156:

Sample No. 1 - SW Sec. 1-118-9W4 (Q.M.E. 108);
N 10°E, 1500'± from camp; 3,000-4,000 cpm (3,600 cpm av.);
orange-pink biotite granite within white grey granite.

Sample No. 2 - SW Sec. 5-118-8W4 (Q.M.E. 108);
near to Thorium airborne radiation area; 3,000 cpm av.;
appears as a lens of metasediments within a biotite pegmatitic granite, relic sedimentary structures resembling arkose and mudstone.

Sample No. 3 - SE Sec. 5-118-8W4 (Q.M.E. 108);
2,000 cpm av.; brown-red biotite granite (granitized metasediment).

Sample No. 4 - SW Sec. 4-118-8W4 (Q.M.E. 108);
3,000 cpm av.; brown-red medium crystalline granite with dark grey splotches of fine grained biotite (granitized iron-rich arkose).

Sample No. 5 - SW Sec. 4-118-8W4 (Q.M.E. 108);
3,000 cpm av.; light pinkish grey medium crystalline biotite granite.

Sample No. 6 - SE Sec. 1-118-9W4 (Q.M.E. 108);
4,000 cpm av.; light pinkish and brownish medium to fine grained biotite granite as layers and stringers within white grey pegmatitic granite with coarse grained feldspar; no apparent radiation from white grey pegmatitic granite.

Sample No. 7 - SE Sec. 4-118-8W4 (Q.M.E. 108);
8,000 cpm av.; brown and blackish red medium crystalline biotite granite, much fine and very fine grained biotite in blackish splotches. Possible airborne radiation anomaly of Thorium.

Sample No. 8 - SE Sec. 4-118-8W4 (Q.M.E. 108);
near Sample No. 7; 3,000 cpm; (consistent and continuous radiation); same red granite as in Sample No. 7.

Sample No. 9 - SE Sec. 4-118-8W4 (Q.M.E. 108);
located at Lake edge at top of vertical scarp into Lake; 5,000 cpm; same red granite with consistent and continuous radiation, very corase crystalline feldspars, much fine and very fine-micro fine grained black biotite in irregular splotches; radiation appears to be associated with biotite.

Sample No. 10 - SW Sec. 3-118-8W4 (Q.M.E. 156);
3,400 cpm; same red granite as in above samples, considerable fine to micro-fine black biotite with vermilion red feldspars.

Sample No. 11 - SW Sec. 1-118-9W4 (Q.M.E. 108);
diamond drill core, cored and recovered about one foot; located at Sample No. 1 (first drill hole with new portable drill); pinkish grey granite with fine to micro-fine grained biotite giving a blackish luster, very hard.

Sample No. 12 - SW Sec. 4-118-8W4 (Q.M.E. 108);
only back-ground radiation of 600-800 cpm; white grey fine crystalline granite with rare micro-fine black biotite; sampled for analysis check.

Sample No. 13 - SE Sec. 4-118-8W4 (Q.M.E. 108);
diamond drill core, cored and recovered about one foot; located at Sample No. 7 where surface radiation of

7,000–8,000 cpm; black biotite and red feldspar granite, very fine to medium crystalline, very hard.

Sample No. 14 – NW Sec. 34-117-8W4 (Q.M.E. 156);
2,600 cpm av., black pinkish fine and very fine crystalline biotite granite, abundant (50+%) black very fine and micro-fine grained biotite, gneissic appearance.

Sample No. 15 – SW Sec. 3-118-8W4 (Q.M.E. 156);
diamond drill core, cored and recovered about one foot; located near Sample No. 10 (3,400 cpm) where surface spot has 8,000 to 10,000 cpm radiation.

Sample No. 16 – SW Sec. 3-118-8W4 (Q.M.E. 156);
surface sample located 10 feet south of Sample No. 15 (drill hole); 2,000–2,400 cpm; black biotite and red feldspar granite, feldspars weather orange, biotite appears all fresh and medium to micro-fine grained, rock is very hard.

Sample No. 17 – SW Sec. 3-118-8W4 (Q.M.E. 156);
diamond drill core, cored and recovered about one foot; started drill hole at Sample No. 16 but abandoned account unable to drill very hard rock; located at 100± feet north of Sample No. 19; black biotite and red-brown feldspar granite, somewhat gneissic.

Sample No. 18 – SW Sec. 3-118-8W4 (Q.M.E. 156);
3,000–4,000 cpm; black fresh biotite and pink-grey feldspar granite, fine to scarcely medium grained crystalline, biotite fine to microfine grained in stringers and splotches giving diabasic gneissic appearance.

Sample No. 19 – SW Sec. 3-118-8W4 (Q.M.E. 156);
3,000–4,000 cpm; located at northeast part of Snake Lake; black fine to micro-fine biotite and pinkish red fine to medium crystalline granite, similar to Sample No. 18.

Sample No. 20 - SE Sec. 4-118-8W4 (Q.M.E. 108);
located at water-edge of Snake Lake (north side) below vertical scarp; 4,000-4,800 cpm (4,500 cpm av.); black biotite and reddish granite, as above, abundant (50+%) biotite, appears crushed; together with dark grey mylonite and amorphous quartz stringers, crushed and slickensided, with very fine grained golden sericitic mica (fault zone texture and lithology).

Sample No. 20A- SE Sec. 4-118-8W4 (Q.M.E. 108);
Duplicate sample of Sample No. 20; sample material consists of more mylonite than in Sample No. 20.

Sample No. 21 - SW Sec. 3-118-8W4 (Q.M.E. 156);
located south of and below Sample No. 19, toward Snake Lake; sampled within a fracture; 8,000-10,000 cpm; black biotite (very fine to micro-fine) and vermilion red feldspar (fine to medium) granite.

Sample No. 22 - NE Sec. 34-117-8W4 (Q.M.E. 156)
located N 80°E of Snake Lake; 1,000± cpm background radiation; sampled for analysis check; reddish pink feldspar granite, very low biotite mica content, rare kaolin-appearing matrix material, arkosic appearance.

Notes: Background radiation over all of Slave River Prospect is 800-1,000± cpm (counts per minute) from granitic rocks.
Radiation above background appears to be associated with biotite and its relative abundance and not directly with feldspars (potassium). Also radiation generally but not consistently appears to increase toward or in the proximity of the Snake Lake (north side) escarpment, interpreted as a major fault movement and displacement.
"Granite" is used in a broad petrologic sense and includes all granitic type rocks. It appears that most of the granitic rocks are genetically granitized sediments. The abundance of black fine and

micro-fine grained biotite may be classed as a porphyritic texture. The black biotite appears more abundant in the proximity of the fault zones present in the vicinity of Snake Lake (see air-photo map). Such a relationship may be the result of both dynamic and granitization action of iron-rich arkosic sandstones.

LAKE ATHABASCA, Northeast Alberta, Canada --

Quartz Mineral Exploration Permit Nos. 105 and 142:

Sample No. 23 - NW Sec. 20-114-5W4 (Q.M.E. 105);
2,000 cpm (max.); mylonite, dark grey, extremely squeezed and compressed, brecciated, fault gouge, very thin quartz veinlets; sampled along vertical escarpment.

Sample No. 24 - NW Sec. 20-114-5W4 (Q.M.E. 105);
granite gneiss, reddish with dark greenish grey mylonite patches, fractured, hard, crushed; sampled in granitic rock at top of ridge just above vertical escarpment.

Sample No. 25 - NW Sec. 9-113-6W4 (Q.M.E. 105);
diamond drill core from old drill hole; pinkish and whitish pegmatitic granite syenite, black biotite, microcline twinning feldspars, quartz; found about 80-100 full core boxes (25' core/box) or approximately 2,000'-2,500' diamond coring from apparently two diamond drill holes located within the area of Sample Nos. 26-33, incl.; old drill holes appear at about 30° angle to horizontal; bulk radiation of cores at point of this sample is about 2,000 cpm with a background radiation of about 1,000 cpm or less. G.S.C. Map 1045A-M1- "Metallogenic Map - Uranium in Canada" (1958) gives the following Locality note for this old diamond-drill prospecting —

(Locality) "41. Fort Chipewyan. New Delhi Mines Ltd., etc. (uraninite)".

It is reported locally in Fort Chipewyan that this diamond drill prospecting was conducted during about 1953; at least subsequent to the 1:40,000 Alberta air-photo series survey during 1949-1951, as the working area and old trail do not show on the air photos.

Sample No. 25A- NW Sec. 9-113-6W4 (Q.M.E. 105);
black biotite segregation within a pegmatitic syenite, some quartz and feldspar, over 75% biotite; sampled from old diamond drill cores as given above and analyzed for association of uranium (if any) with biotite.

Sample No. 26 - NW Sec. 9-113-6W4 (Q.M.E. 105);
surface blasted area as per aerial-photograph map location for Sample Nos. 26-33; 36,000-40,000 cpm and occasionally as high as 44,000 cpm with full mass effect, background about 1,000 cpm; yellowish and reddish syenite pegmatite with minor micro-fine black biotite clusters, fractured; dull yellow crusty surface coating and disseminations, generally along fractures (secondary?), yellow crust deposit tentatively identified as <u>autunite</u> - $Ca(UO_2)_2(PO_4)_2 \cdot 8H_2O$.

Sample No. 26A- NW Sec. 9-113-6W4 (Q.M.E. 105);
same as Sample No. 26; much microfine black biotite and dull yellow crusty material (autunite) on fracture surfaces.

Sample No. 26B- NW Sec. 9-113-6W4 (Q.M.E. 105);
same as Sample No. 26; coarse crystalline feldspars, little quartz, micro-fine black biotite in irregular wavy gneissic layers; common dull yellow crusty material (autunite) as above; jet black paper-thin fracture-filled material at right-angles to gneissic layering.

Sample No. 27 - NW Sec. 9-113-6W4 (Q.M.E. 105);
located one-foot north of Sample No. 26; mylonite with crushed pegmatitic material, dark grey yellowish and pinkish, smooth slickensided fracture with striae; much dull yellow crusty material (autunite) throughout on all exposed fractures and internal platy texture.

Sample No. 28 - NW Sec. 9-113-6W4 (Q.M.E. 105);
located about 25 feet south of Sample Nos. 26 and 27; 20,000 cpm radiation; coarse and very coarse crystalline feldspathic pegmatitic syenite with large clusters and aggregations of black micro-fine biotite, rusty whitish grey to black, no yellow coloration or crusty material noted.

Sample No. 29 - NW Sec. 9-113-6W4 (Q.M.E. 105);
located about 30 feet north of Sample Nos. 26 and 27; 20,000 cpm radiation; very coarse crystalline syenite pegmatite, few thin quartz veinlets, healed fractures, pinkish white with faint yellowish crusty material (autunite) on fracture surfaces and lightly disseminated, sparce black micro-fine biotite.

Sample No. 30 - NW Sec. 9-113-6W4 (Q.M.E. 105);
diamond drill core, cored and recovered about one foot, lost circulation in fracture (fracture may have been from blasting); located one foot north of Samply No. 26 at a vertical joint-fracture surface, which reads as high as 44,000 cpm radiation; pinkish white syenite pegmatite, medium to very coarse crystalline, little biotite, no yellow material noted.

Sample No. 30A- NW Sec. 9-113-6W4 (Q.M.E. 105);
composite sample of surface material northward from Sample No. 26 and Sample No. 30 to north end of surface blast area; sampled mainly in biotite segregations in syenite pegmatite at spots and localities of very deep

differential chemical weathering of biotite flood layers as thick as 4 feet, black with rusty pink very coarse crystalline feldspars, no yellow coloration noted.

Sample No. 30B- NW Sec. 9-113-6W4 (Q.M.E. 105);

Ditto Sample No. 30A; with small and thin quartz veinlets.

Sample No. 31 - NW Sec. 9-113-6W4 (Q.M.E. 105);

diamond drill core, cored and recovered 3.35 feet, lost circulation in a primary rock fracture (not from blasting); located 35 feet N33°E from Sample Nos. 26 and 30; mainly very fine and micro-fine crystalline black biotite segregation in a syenite pegmatite; no yellow crusty material.

Sample No. 32 - NW Sec. 9-113-6W4 (Q.M.E. 105);
diamond drill core, cored and recovered 2.3 feet, lost circulation in a primary rock fracture (not from blasting); located 58 feet N48°E from Sample No. 31 (diamond drill hole); same lithology as the core material in Sample No. 31.

Sample No. 33 - NW Sec. 9-113-6W4 (Q.M.E. 105);
diamond drill core, cored and recovered 1.0 foot, lost circulation in a primary rock fracture (not from blasting); located 31 feet S45°W from Sample No. 30 (diamond drill hole); whitish grey coarse crystalline syenite pegmatite with thin anastomosing black microfine black biotite veinlets.

Sample No. 34 - NW Sec. 9-114-6W4 (Q.M.E. 105);
surface sample located northeast of surface-blast area but on same topographic raise; 30,000 cpm radiation; marble-mottled black and light pinkish white syenite pegmatite, coarse and very coarse crystalline feldspar and disseminated very fine to micro-fine crystalline black biotite, some rare dull yellow crusty material (autunite) on exposed biotite surface.

Sample No. 35 - SW Sec. 15-113-6W4 (Q.M.E. 105);
low local radiation area of 1,200-1,600 cpm, background about 800 cpm; granite gneiss, dark grey blackish with pinkish feldspars, fine to medium grained crystalline.

Sample No. 36 - SE Sec. 16-113-6W4 (Q.M.E. 105);
located on northeasterly edge of Hammer Lake; 3,400 cpm local radiation; light to medium-dark grey granite gneiss.

Sample No. 37 - NW Sec. 29-114-5W4 (Q.M.E. 105);
1,600-2,000 cpm; red brown granite gneiss with injections of syenite pegmatite as stringer and pod masses, gneissic structure badly contorted but only rarely digested.

Notes: Some gamma ray radiation always appears in association with the mylonite in fault zones, as shown in Sample No. 23.
The dull yellow crusty material is tentatively determined visually (megascopic) by the writer, with the assistance of Mr. Loring McIsaac, Chief Assayer, Loring Laboratories Ltd., as —— Autunite: a hydrous phosphate of uranium and calcium; $Ca(UO_2)_2(PO_4)_2 \cdot 8H_2O$; UO_3 62.7%. (Carnotite was ruled out because this material is not a canary yellow powder and is not minute waxy scales with a greasy feel.) No chemical tests were applied for the determination. A fluorescence check made by the writer shows a dull but definite yellow fluorescence color. The pegmatitic association and appearance as foliated and scaly micaceous aggregates, flaky and brittle, lemon to sulphur-yellow color and yellow streak characteristics aided in the tentative determination. These characteristics of Autunite are given in the mineralogic descriptive literature, as well as the facts that Autunite commonly occurs in pegmatites and is commonly of secondary origin.
In the case of the surface blast area (Sample Nos. 26-33, inclusive) the association is pegmatitic. However, the crusty and scaly occurrence within and on fracture surfaces would seem to indicate a secondary origin at least to some extent. The literature does note that Autunite is associated with uraninite and other

uranium minerals.

No uraninite or pitchblende was noted, and no uraninite is believed present unless it is intimately associated with the black biotite masses in micro- or sub-microscopic form.

There is always gamma ray radiation from the dull yellow crusty material and in some cases radiation from rocks with no or very little yellow material but considerable biotite, such as Sample Nos. 28, 29, 30A, 30B and 34. No yellow crusty material is noted in any of the diamond drill cores, and its presence appears to be confined to the near surface exposures, of the surface blast area, which is about 18 years old (1953-1970).

There is definitely good radiation and U_3O_8 assays always associated with the yellow crusty material (Autunite), and in the Samples cited above the radiation is associated with little or no yellow material, apparently coming from the biotite floods, and giving appreciable U_3O_8 assay (Sample No. 28 = 0.037%, Sample No. 29 = 0.051%).

One "grab" or hand sample with heavily coated yellow crusty material, collected by the writer, was analyzed separately and specially by Core Laboratories-Canada Ltd. and reported verbally to the writer as having a U_3O_8 content of 0.265%. This sample was submitted as a check for sample radiation by the scintillometer and also as a special check on the uranium content and was purposely not included in the Assay reports of the more representative samples.

The radiation area may be outlined fairly well as being about 200 feet N30°±E and 76 feet wide. The area could possibly extend farther northeast to include and go beyond Sample No. 34 and also extend toward Hammer Lake to the northeast with smaller amounts of radiation.

LAKE ATHABASCA, Northeast Alberta, Canada —

Quartz Mineral Exploration Permit No. 104:

Sample No. 38 - SW Sec. 34-116-3W4 (Photo No. 2);
located north along coast from camp; locality once a part of old prospecting activity at Fidler Point; airborne gamma ray anomaly 104F; 3,000-4,000 cpm, background (B.G.) 600-1,000 max. cpm; Syenite pegmatite very coarse crystalline, large euhedral crystal clusters of black biotite and brown red feldspars; country rock is pegmatitic granite, locally gradational to a pegmatite, occasional relics of gneissic rock.

Sample No. 39 - SE Sec. 19-118-1W4 (Photo No. 8);
only sample collected from traverse of four airborne gamma ray anomalies located north of Cypress Point and west of Fallingsand Point; isolated spot with 3,000 cpm, immediate background 1,000 max. cpm, low regional background (B.G.) 300-400 cpm due to muskeg and glacial outwash; airborne anomalies are given in radiation above background; an area with a low background should contain more airborne radiation anomalies even when relatively low radiation granitic rocks outcrop; pink red granite, speckled and mottled with black biotite, fine to medium crystalline, resembles a granitized sediment.

Sample No. 40 - NE Sec. 33-116-3W4 (Photo No. 2);
located north and west along coast from camp, atop high hill just north of fault zone; airborne gamma ray anomaly 104E; 2,800-3,000 cpm (B.G. = 1,000 cpm max.); dull grey syenite, medium to coarse crystalline, mostly feldspar, little quartz, vague streaky laminae of black biotite.

Sample No. 41 - NW Sec. 33-116-3W4 (Photo No. 2);
Airborne gamma ray anomaly 104E; 4,000 cpm max.,

2,000-3,000 cpm common over small area (B.G. 1,000 cpm); reddish pink granite, fine to medium crystalline with local very coarse quartz, very fine to micro-fine grained black biotite, very hard, resembles a granitized sediment (pebbly arkosic sandstone).

Sample No. 42 - NW Sec. 33-116-3W4 (Photo No. 2); near to Sample No. 41; 104E anomaly; 10,000 cpm max., (B.G. = 1,000 cpm); dull grey syenite, somewhat pegmatitic, black biotite, fine to very coarse grained crystalline, single small ($\frac{1}{4}$") red octahedron garnet crystal noted, extremely hard.

Sample No. 43 - SE Sec. 33-116-3W4 (Photo No. 2); near lake shore and faulting; 3,000 cpm; 104E gamma ray anomaly; red euhedral feldspar pegmatite, feldspar crystals to 2", very little biotite, some anhedral quartz, broken and somewhat crumbly; immediately west of this Sample No. 43 is a fault zone, badly gouged and crushed mylonite fault zone; one old prospecting trench in fault zone, outcrop shows no mineral and no quartz.

Sample No. 44 - NE Sec. 2-117-3W4 (Photo No. 3); located north-northwest of Whitesand Point; airborne gamma ray anomalies 104A-D (relatively the highest airborne anomalies over Q.M.E. 104), anomaly 104A; 10,000 cpm (B.G. 1,000 cpm); very local radiation area; pegmatitic granite syenite, quartz, reddish feldspar, black biotite, fine to very coarse grained crystalline, hard.

Sample No. 45 - SW Sec. 11-117-3W4 (Photo No. 3); anomaly 104A; 8,000-10,000 cpm (B.G. 1,000 cpm); composite sample over an area about 100 feet by 100 feet; feldspathic pegmatitic syenite, dull grey with dull yellow splotchy stainings on very coarse euhedral feldspars (up to 2" crystals),(about 40% feldspars show dull yellow coloration), very little biotite, some quartz, hard, difficult to break,

chemical etched weathering on feldspar surfaces, also some apple green coloration associated with yellow staining.
Note: necessary to leave area account heavy smoke and rain.

Sample No. 46 - NE Sec. 26-117-2W4 (Photo No. 6);
located south along coast from Cypress Point; airborne gamma ray anomaly 104K along coast line; 4,600 cpm on weathered surface and 5,000 cpm on fresh broken surface (B.G. 600-800 cpm), low background radiation due to much muskeg and glacial outwash over area; a local syenite pegmatite within granitic gneiss and granitized sediments, large euhedral feldspar crystals with associated radiation, only little black biotite, chemical etched weathering on surface and some internal, no yellow color as in Sample No. 45 but some scattered greenish coloration.

Sample No. 47 - NE Sec. 28-117-2W4 (Photo No. 6);
located north-northeast of the mouth of Fishing Creek; airborne gamma ray anomaly 104G; radiation to 10,000 cpm max. in a localized area (B.G. 1,000 cpm); white grey syenite pegmatite within granitized sediments, quite small and local area, no yellow staining or chemical weathering as previously noted, feldspar crystal faces give a somewhat diabasic texture, fine to very coarse grained crystalline, relics of sedimentary structure and contortions with pegmatite seams.

Sample No. 48 - SW Sec. 11-117-3W4 (Photo No. 3);
located at same locality as Sample No. 45; anomaly 104A; composite sample over radiation area; 8,000-10,000 cpm (B.G. 1,000 cpm); used 2,000 cpm with yellow staining as limits of area, 200 feet north-south and 170 feet N75°W; same rock lithology as Sample No. 45 (feldspathic pegmatitic syenite); much yellow staining with green staining just below the feldspar surface grading from the yellow staining within 1/32" to 1/16" thickness, all staining

associated with the feldspars and not biotite; rather difficult to break off sample material except at sealed joints and fractures; country rocks are granitized sediments (apparently from arkosic sandstone) and occasional biotite gneiss (apparently from sandy shale), sedimentary structure relics.

Sample No. 49 - SW Sec. 11-117-3W4 (Photo No. 3); composite sample; ditto Sample No. 48.

Sample No. 50 - SW Sec. 11-117-3W4 (Photo No. 3); same locality as Sample Nos. 45, 48, and 49, located on westerly edge of anomalous radiation and yellow stain area, sampled from roots of a fallen tree; no yellow or greenish staining noted but more biotite present than over most of anomalous area.

Sample No. 51 - SW Sec. 11-117-3W4 (Photo No. 3); sample located on about airborne gamma ray anomaly 104B, north-northwest of Sample No. 45 area; 4,600 cpm max. (B.G. 800-1,000 cpm); rather small area; granitic syenite, medium to coarse grained, quartz, some biotite, not too feldspathic, scattered black biotite, no yellow or greenish staining.

Sample No. 52 - NE Sec. 11-117-3W4 (Photo No. 3); sample located on about airborne gamma ray anomaly 104C, north-northeast of Sample 45 area; 20,000 cpm max. (B.G. 1,000 cpm); relatively small area (50' X 50' ±); similar rock conditions to Sample No. 45 and Sample No. 51; feldspathic pegmatitic syenite with granitic syenite, hard, yellow and green staining, some chemical etched weathering; sampled on fracture joint where had high radiation count.

Sample No. 53 - NW Sec. 12-117-3W4 (Photo No. 3); sample located on about airborne gamma ray anomaly 104C (north part); 10,000 cpm (B.G. 1,000 cpm); same feldspathic

pegmatitic syenite with yellow and greenish staining on feldspars and heavily coated in spots.

Sample No. 54 - NW Sec. 13-117-3W4 (Photo No. 3);
composite sample of cores (1,100'±) from old diamond drill hole located north of airborne gamma ray anomaly 104C on Fishing Creek along the Fishing Creek fault; all of cores check as barren with the hand scintillometer (only 400-600 cpm); cores are of various lithologies including medium-dark brick red quartzite and granitized sediments, spally mylonite fault zone and pegmatitic injected gneiss; brick red granitized sediments outcrop to north of drill hole;
the drill hole apparently penetrated pegmatitic injected and contorted gneiss and metasediments, then cored through a mylonized fault zone and into brick red granitized sediments (based on the first cores taken as being at the bottom of the old broken core rack and the bottom drill cores being at the top of the rack; no evidence of mineral showings, quartz stringers or yellow staining.

Notes: Quartz Mineral Exploration Permit No. 104 is characterized by a number of airborne gamma ray spectrometer radiation anomalies, which anomalies are based on the gamma ray radiation above background. Considerable portions of the area are covered by muskeg and glacial outwash with sparse jack-pine growth that has a very low background (300-600 max.cpm). Such a low background may account for some of the anomalies (I.E. degree of radiation above a very low background).
The gamma ray radiation is directly associated with the syenite pegmatite facies with yellow and greenish staining and not with biotite. No particular radiation occurs from the granitized sediments, metasediments granitic gneiss or lit-par-lit injection gneiss. The pegmatitic facies showing radiation and yellow-greenish

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Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-A

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit No. 108 &156 Slave River Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 1 1, 11, 2,6	Sample	Sample		Sample Group 1 1, 11, 2,6	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.05-.1%			Rhenium	X		
Beryllium (BeO)	-			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.001%			Ruthenium	-		
Cadmium	-			Silver	-.1oz:t		
Cerium (CeO_2)	PT			Strontium	.07%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.001%			Tin	-		
Gallium	.002%			Titenium	.5-1%		
Germanium	-			Tungsten	-		
Gold	-.01oz:t			Uranium (U_3O_8)	-		
Hafnium	-			Vanedium	.01%		
Indium	-			Yttrium (Y_2O_3)	.002%		
Iridium	-			Zinc	-		
Lanthanum La_2O_3)	.1-.2%			Zirconium ZrO_2)	.02%		
Lead	.02%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.02%			Celcium (CeO)	.5%		
Mercury	-			Iron (Fe)	LM		
Molybdenum	-			Magnesium(MgO)	LM		
Neodymium Nd_2O_3)	T			Silica (SiO_2)	H		
Nickel	.001%			Sodium Na_2O)	LM		
Palladium	-			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for- not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

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P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-A

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit No. 108 & 156 Slave River

Sample(s) Of Assay Samples — Northeast Alberta, Canada

	Sample Group 2 3,4,5	Sample	Sample		Sample Group 2 3,4,5	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.5%			Rhenium	X		
Beryllium (BeO)	-			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
Cadmium	-			Silver	-.1oz:t		
Cerium (CeO_2)	PT			Strontium	.07%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.002%			Tin	-		
Gallium	.003%			Titanium	LM		
Germanium	-			Tungsten	-		
Gold	PT			Uranium (U_3O_8)	-		
Hafnium	-			Vanadium	.02%		
Indium	-			Yttrium (Y_2O_3)	.002%		
Iridium	-			Zinc	-		
Lanthanum (La_2O_3)	.1-.2%			Zirconium (ZrO_2)	.05-.1%		
Lead	.1%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.02%			Calcium (CaO)	1%		
Mercury	-			Iron (Fe)	M		
Molybdenum	-			Magnesium (MgO)	LM		
Neodymium (Nd_2O_3)	T			Silica (SiO_2)	H		
Nickel	.002%			Sodium (Na_2O)	M		
Palladium	-			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for-not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

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SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-A

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit No. 108 & 156 Slave River

Sample(s) Of Assay Samples — Northeast Alberta, Canada

	Sample Group 3 12, 22	Sample	Sample		Sample Group 3 12,22	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.1%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
Cadmium	-			Silver	-.1oz:t		
Cerium (CeO_2)	-			Strontium	.06%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	-.001%			Tin	-		
Gallium	.003%			Titanium	.15%		
Germanium	-			Tungsten	-		
Gold	-			Uranium (U_3O_8)	-		
Hafnium	-			Vanadium	-.01%		
Indium	-			Yttrium (Y_2O_3)	-		
Iridium	-			Zinc	-		
Lanthanum (La_2O_3)	-			Zirconium (ZrO_2)	.005%		
Lead	.04%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	-.01%			Calcium (CaO)	.4%		
Mercury	-			Iron (Fe)	LM		
Molybdenum	-			Magnesium(MgO)	.5-1%		
Neodymium (Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.002%			Sodium (Na_2O)	M		
Palladium	-			Potessium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for-not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

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SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO.
CAL-2-2465-A

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit No. 108 & 156 Slave River

Sample(s) Of Assay Samples — Northeast Alberta, Canada

	Sample Group 4 13,15,17	Sample	Sample		Sample Group 4 13,15,17	Sample	Sample
Antimony	–			Phosphorus	–		
Arsenic	–			Platinum	–		
Barium	.2%			Rhenium	X		
Beryllium (BeO)	–			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.002%			Ruthenium	–		
Cadmium	–			Silver	–.1oz:t		
Cerium (CeO_2)	–			Strontium	.07%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	–.01%			Tellurium	–		
Cobalt	–.01%			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	–		
Copper	–.001%			Tin	–		
Gallium	.002%			Titanium	.5%		
Germanium	–			Tungsten	–		
Gold	–			Uranium (U_3O_8)	–		
Hafnium	–			Vanadium	.01%		
Indium	–			Yttrium (Y_2O_3)	.001%		
Iridium	–			Zinc	–		
Lanthanum (La_2O_3)	–			Zirconium (ZrO_2)	.02%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	–			Aluminum (Al_2O_3)	MH		
Manganese	–.01%			Calcium (CaO)	.5%		
Mercury	–			Iron (Fe)	LM		
Molybdenum	–			Magnesium(MgO)	1%		
Neodymium (Nd_2O_3)	–			Silica (SiO_2)	H		
Nickel	.001%			Sodium (Na_2O)	M		
Palladium	–			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for- not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

DATE September 11, 1970 **SIGNED** [redacted]

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SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-A

Sample(s) From North Canadian Oils Limited Q.M.E. Permit No. 108 & 156 Slave River Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 5 7,8,9,10, 20,16,20A	Sample	Sample		Sample Group 5 7,8,9,10, 16,20,20A	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.5%			Rhenium	X		
Beryllium (BeO)	-			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
Cadmium	-			Silver	-.1oz:t		
Cerium (CeO_2)	-			Strontium	.1%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.001%			Tin	-		
Gallium	.003%			Titanium	LM		
Germanium	-			Tungsten	-		
Gold	-			Uranium (U_3O_8)	-		
Hafnium	-			Vanadium	.01%		
Indium	-			Yttrium (Y_2O_3)	.002%		
Iridium	-			Zinc	-		
Lanthanum La_2O_3)	.02%			Zirconium ZrO_2)	.05-.1%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.03%			Calcium (CaO)	1%		
Mercury	-			Iron (Fe)	M		
Molybdenum	-			Magnesium(MgO)	LM		
Neodymium Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.001%			Sodium Na_2O)	M		
Palladium	-			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace – approx. less than .01%.
	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace – Presence not certain.
	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected – Elements looked for-not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for

DATE September 11, 1970 **SIGNED** [redacted]

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P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-A

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit No.108 & 156 Slave River Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 6 14,18,19,21	Sample	Sample		Sample Group 6 14,18,19,21	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.2%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
[illegible]nium	-			Silver	-.1oz:t		
[illegible]m (CeO_2)	-			Strontium	.07%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.001%			Tin	-		
Gallium	.002%			Titanium	.1%		
Germanium	-			Tungsten	-		
Gold	PT			Uranium (U_3O_8)	-		
Hafnium	-			Vanadium	.01%		
Indium	-			Yttrium (Y_2O_3)	.002%		
Iridium	-			Zinc	-		
Lanthanum (La_2O_3)	-			Zirconium (ZrO_2)	.02%		
Lead	.01%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.01%			Calcium (CaO)	.5%		
Mercury	-			Iron (Fe)	LM		
Molybdenum	-			Magnesium (MgO)	LM		
Neodymium (Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.001%			Sodium (Na_2O)	M		
Palladium	-			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace – approx. less than .01%.
M[illegible]	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace – Presence not certain.
M[illegible]	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected – Elements looked for-not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for

DATE September 11, 1970 **SIGNED** [redacted]

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CORE LABORATORIES - CANADA LTD.
Petroleum Reservoir Engineering

P.O. BOX 5670, POSTAL STATION "A"
CALGARY 9, ALBERTA
TELEPHONE: 253-3391

Company: North Canadian Oils Limited
Q.M.E. Permit 105
Lake Athabasca, Northeast Alberta, Canada

Page: 1 of 1
File: CAL-2-2465-B
Date: September 11/70

Sample	Uranium (U_3O_8%)	Thorium (ThO_2%)
23	0.007	*-0.01
24	0.001	0.01
25	0.005	*-0.01
25A	0.001	*-0.01
26	0.031	0.03
26A	0.153	0.06
26B	0.017	0.01
27	0.071	0.02
28	0.037	0.02
29	0.051	0.03
30	0.026	*-0.01
30A	0.016	*-0.01
30B	0.013	*-0.01
31	ND	*-0.01
32	0.009	*-0.01
33	0.017	*-0.01
34	0.029	*-0.01
35	0.001	*-0.01
36	0.002	*-0.01
37	ND	*-0.01

Note: Uranium - ND - Less than 0.001%
Thorium *- = Less than

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Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-B

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 105, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 1 23,24,37	Sample	Sample		Sample Group 1 23,24,37	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.5%			Rhenium	X		
Beryllium (BeO)	-			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.001%			Ruthenium	-		
Cadmium	-			Silver	-		
Cerium (CeO_2)	-			Strontium	.1%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	- .01%			Tellurium	-		
Cobalt	- .01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.003%			Tin	-		
Gallium	.002%			Titanium	LM		
Germanium	-			Tungsten	-		
Gold	PT			Uranium (U_3O_8)	-		
Hafnium	-			Vanadium	- .01%		
Indium	-			Yttrium (Y_2O_3)	.003%		
Iridium	-			Zinc	-		
Lanthanum (La_2O_3)	.02%			Zirconium (ZrO_2)	.05-.1%		
Lead	.02%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.02%			Calcium (CaO)	LM		
Mercury	-			Iron (Fe)	M		
Molybdenum	-			Magnesium (MgO)	LM		
Neodymium (Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.001%			Sodium (Na_2O)	M		
Palladium	-			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace – approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace – Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05 – .5% approx.	–	– Not Detected – Elements looked for-not Found
			T	– Trace	– .01 – .1% approx.	X	– Not looked for

DATE September 11, 1970 **SIGNED** [redacted]

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Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-B

Sample(s) From North Canadian Oils Limited Q.M.E. Permit 105 Lake Athabasca

Sample(s) Of Assay Samples Northeast Alberta, Canada

	Sample Group 2 25. 25A	Sample	Sample		Sample Group 2 25. 25A	Sample	Sample
Antimony	–			Phosphorus	–		
Arsenic	–			Platinum	–		
Barium	.1%			Rhenium	X		
Beryllium (BeO)	–.0001%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.001%			Ruthenium	–		
Cadmium	–			Silver	–		
Cerium (CeO_2)	–			Strontium	.06%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	–.01%			Tellurium	–		
Cobalt	–.01%			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	–		
Copper	.002%			Tin	–		
Gallium	.003%			Titanium	1%		
Germanium	–			Tungsten	–		
Gold	–			Uranium (U_3O_8)	–		
Hafnium	–			Vanadium	.02%		
Indium	–			Yttrium (Y_2O_3)	.002%		
Iridium	–			Zinc	–		
Lanthanum (La_2O_3)	–			Zirconium ZrO_2)	.01%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	–			Aluminum (Al_2O_3)	MH		
Manganese	.05%			Calcium (CaO)	LM		
Mercury	–			Iron (Fe)	M		
Molybdenum	–			Magnesium(MgO)	M		
Neodymium (Nd_2O_3)	–			Silica (SiO_2)	H		
Nickel	.008%			Sodium (Na_2O)	M		
Palladium	–			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Madium	– .5 – 5% approx.	FT	– Faint Trace – approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace – Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected – Elements looked for–not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for

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SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-B

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 105, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample	Sample	Sample		Sample	Sample	Sample
	Group 3 26,26A,26B, 27,28,29,30, 30A,30B				Group 3 26,26A,26B 27,28,29,30, 30A,30B		
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.1%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
Cadmium	-			Silver	-		
Cerium (CeO_2)	-			Strontium	.06%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	.01%		
Copper	.002%			Tin	-		
Gallium	.002%			Titanium	.7%		
Germanium	-			Tungsten	-		
Gold	PT			Uranium (U_3O_8)	.05%		
Hafnium	-			Vanadium	.02%		
Indium	-			Yttrium (Y_2O_3)	.005%		
Iridium	-			Zinc	-		
Lanthanum La_2O_3)	-			Zirconium ZrO_2)	.02%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.04%			Calcium (CaO)	LM		
Mercury	-			Iron (Fe)	M		
Molybdenum	.002%			Magnesium(MgO)	M		
Neodymium Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.003%			Sodium (Na_2O)	M		
Palladium	-			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace – approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace – Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected – Elements looked for – not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for

DATE September 11, 1970 **SIGNED** [redacted]

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P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-B

Sample(s) From North Canadian Oils Limited Q.M.E. Permit 105
Lake Athabasca
Sample(s) Of Assay Samples Northeast Alberta, Canada

	Sample	Sample	Sample		Sample	Sample	Sample
	Group 4 30,31,32,33				Group 4 30,31,32,33		
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.07%			Rhenium	X		
Beryllium (BeO)	.0001%			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
Cadmium	-			Silver	-.1oz:t		
Cerium (CeO_2)	-			Strontium	.08%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.001%			Tin	-		
Gallium	.003%			Titanium	.4%		
Germanium	-			Tungsten	-		
Gold	-			Uranium (U_3O_8)	.01%		
Hafnium	-			Vanadium	.01%		
Indium	-			Yttrium (Y_2O_3)	.002%		
Iridium	-			Zinc	-		
Lanthanum (La_2O_3)	-			Zirconium (ZrO_2)	.02%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.03%			Calcium (CaO)	LM		
Mercury	-			Iron (Fe)	LM		
Molybdenum	-.001%			Magnesium (MgO)	LM		
Neodymium (Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.002%			Sodium (Na_2O)	M		
Palladium	-			Potassium (K_2O)	1%		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for-not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

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SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-B

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 105, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 5 35,36	Sample	Sample		Sample Group 5 35,36	Sample	Sample
Antimony	–			Phosphorus	–		
Arsenic	=			Platinum	–		
Barium	.07%			Rhenium	X		
Beryllium (BeO)	–.0001%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.001%			Ruthenium	–		
Cadmium	–			Silver	–		
Cerium (CeO_2)	PT			Strontium	.05%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	–.01%			Tellurium	–		
Cobalt	–.01%			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	–		
Copper	.007%			Tin	–		
Gallium	.002%			Titanium	LM		
Germanium	–			Tungsten	–		
Gold	–			Uranium (U_3O_8)	.04%		
Hafnium	–			Vanadium	.02%		
Indium	–			Yttrium (Y_2O_3)	.003%		
Iridium	–			Zinc	–		
Lanthanum La_2O_3)	–			Zirconium ZrO_2)	.01%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	–			Aluminum (Al_2O_3)	MH		
Manganese	.04%			Calcium (CaO)	LM		
Mercury	–			Iron (Fe)	M		
Molybdenum	.001%			Magnesium(MgO)	M		
Neodymium Nd_2O_3)	T			Silica (SiO_2)	H		
Nickel	.008%			Sodium Na_2O)	M		
Palladium	–			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for– not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

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CORE LABORATORIES - CANADA LTD.

P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-B

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 105, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 6 34	Sample	Sample		Sample Group 6 34	Sample	Sample
Antimony	–			Phosphorus	–		
Arsenic	–			Platinum	–		
Barium	.3%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.001%			Ruthenium	–		
Cadmium	–			Silver	-.1oz:t		
Cerium (CeO_2)	PT			Strontium	.05%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	-.01%			Tellurium	–		
Cobalt	-.01%			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	–		
Copper	.001%			Tin	–		
Gallium	.001%			Titanium	.4%		
Germanium	–			Tungsten	–		
Gold	PT			Uranium (U_3O_8)	–		
Hafnium	–			Vanadium	-.01%		
Indium	–			Yttrium (Y_2O_3)	.002%		
Iridium	–			Zinc	–		
Lanthanum La_2O_3)	–			Zirconium (ZrO_2)	.01%		
Lead	.01%			ROCK FORMING METALS			
Lithium (Li_2O)	–			Aluminum (Al_2O_3)	MH		
Manganese	.02%			Calcium (CaO)	1%		
Mercury	–			Iron (Fe)	M		
Molybdenum	–			Magnesium(MgO)	M		
Neodymium Nd_2O_3)	PT			Silica (SiO_2)	H		
Nickel	.004%			Sodium Na_2O)	M		
Palladium	–			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for-not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

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CORE LABORATORIES - CANADA LTD.
Petroleum Reservoir Engineering

P.O. BOX 5670, POSTAL STATION "A"
CALGARY 9, ALBERTA
TELEPHONE: 253-3391

Company: North Canadian Oils Limited
Q.M.E. Permit 104
Lake Athabasca, Northeast Alberta, Canada

File: CAL-2-2465-C
Date: September 11/70

Sample	Uranium (U_3O_8%)	Thorium (ThO_2%)
38	0.001	*-0.01
39	0.001	*-0.01
40	0.002	*-0.01
41	0.007	*-0.01
42	0.006	*-0.01
43	ND	*-0.01
44	0.006	*-0.01
45	0.041	*-0.01
46	0.002	*-0.01
47	0.011	*-0.01
48	0.041	*-0.01
49	0.086	*-0.01
50	0.007	*-0.01
51	0.004	*-0.01
52	0.051	*-0.01
53	0.016	*-0.01
54	0.001	*-0.01

Note: Uranium - ND - Less than 0.001%
Thorium *- = Less than

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P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 104, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample	Sample	Sample		Sample	Sample	Sample
	Group 1 38,40,41,42, 43				Group 1 38,40,41,42, 43		
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.2%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
Cadmium	-			Silver	-.loz:t		
Cerium (CeO_2)	-			Strontium	.05%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.001%			Tin	-		
Gallium	.002%			Titanium	.1%		
Germanium	-			Tungsten	-		
Gold	PT			Uranium (U_3O_8)	-		
Hafnium	-			Venadium	.01%		
Indium	-			Yttrium (Y_2O_3)	.007%		
Iridium	-			Zinc	-		
Lanthanum La_2O_3)	-			Zirconium ZrO_2)	.01%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.02%			Calcium (CaO)	.4%		
Mercury	-			Iron (Fe)	LM		
Molybdenum	-			Magnesium(MgO)	LM		
Neodymium Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.001%			Sodium Na_2O)	LM		
Palladium	-			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for–not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

DATE September 11, 1970 **SIGNED** [redacted]

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P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 104, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 2 39, 46,47	Sample	Sample		Sample Group 2 39, 46, 47	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.3%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.002%			Ruthenium	-		
Cadmium	-			Silver	-.1oz:t		
Cerium (CeO_2)	-			Strontium	.07%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	-.001%			Tin	-		
Gallium	.003%			Titanium	.5%		
Germanium	-			Tungsten	-		
Gold	PT			Uranium (U_3O_8)	-		
Hafnium	-			Vanadium	.01%		
Indium	-			Yttrium (Y_2O_3)	.004%		
Iridium	-			Zinc	-		
Lanthanum (La_2O_3)	-			Zirconium (ZrO_2)	.01%		
Lead	.04%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.03%			Calcium (CaO)	.5%		
Mercury	-			Iron (Fe)	M		
Molybdenum	-			Magnesium(MgO)	LM		
Neodymium (Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.002%			Sodium (Na_2O)	M		
Palladium	-			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05 – .5% approx.	–	– Not Detected	– Elements looked for – not found
			T	– Trace	– .01 – .1% approx.	X	– Not looked for	

DATE September 11, 1970 **SIGNED** [redacted]

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Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 104, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample	Sample	Sample		Sample	Sample	Sample
Antimony	Group 3 44,45,48, 49,50,51, 52,53			Phosphorus	Group 3 44,45,48, 49,50,51, 52,53		
Arsenic	–			Platinum	–		
Barium	.1%			Rhenium	X		
Beryllium (BeO)	–.0001%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.002%			Ruthenium	–		
Cadmium	–			Silver	–.1oz:t		
Cerium (CeO_2)	–			Strontium	.05%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	–			Tellurium	–		
Cobalt	–			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	.01%		
Copper	–.001%			Tin	–		
Gallium	.002%			Titanium	.07%		
Germanium	–			Tungsten	–		
Gold	PT			Uranium (U_3O_8)	.03%		
Hafnium	–			Vanadium	–.01%		
Indium	–			Yttrium (Y_2O_3)	.05%		
Iridium	–			Zinc	–		
Lanthanum La_2O_3)	–			Zirconium ZrO_2)	.02%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)	–			Aluminum (Al_2O_3)	MH		
Manganese	.03%			Calcium (CaO)	.5%		
Mercury	–			Iron (Fe)	LM		
Molybdenum	–			Magnesium(MgO)	LM		
Neodymium Nd_2O_3)	–			Silica (SiO_2)	H		
Nickel	.001%			Sodium (Na_2O)	M		
Palladium	–			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected	– Elements looked for not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for	

DATE September 11, 1970 **SIGNED** [redacted]

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CORE LABORATORIES - CANADA LTD.

P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 104, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 4 54	Sample	Sample		Sample Group 4 54	Sample	Sample
Antimony	-			Phosphorus	-		
Arsenic	-			Platinum	-		
Barium	.07%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	-		
Bismuth	-			Rubidium	X		
Boron	.003%			Ruthenium	-		
Cadmium	-			Silver	-.1oz:t		
Cerium (CeO_2)	-			Strontium	.02%		
Caesium	X			Tantalum (Ta_2O_5)	-		
Chromium	-.01%			Tellurium	-		
Cobalt	-.01%			Thallium	-		
Columbium (Cb_2O_5)	-			Thorium (ThO_2)	-		
Copper	.002%			Tin	-		
Gallium	.001%			Titanium	.2%		
Germanium	-			Tungsten	-		
Gold	PT			Uranium (U_3O_8)	-		
Hafnium	-			Vanadium	-.01%		
Indium	-			Yttrium (Y_2O_3)	.002%		
Iridium	-			Zinc	-		
Lanthanum (La_2O_3)	-			Zirconium (ZrO_2)	.005%		
Lead	-.01%			ROCK FORMING METALS			
Lithium (Li_2O)	-			Aluminum (Al_2O_3)	MH		
Manganese	.01%			Calcium (CaO)	.7%		
Mercury	-			Iron (Fe)	LM		
Molybdenum	-			Magnasium(MgO)	M		
Neodymium (Nd_2O_3)	-			Silica (SiO_2)	H		
Nickel	.002%			Sodium (Na_2O)	M		
Palladium	-			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace – approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace – Presence not certain.
	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05– .5% approx.	–	– Not Detected – Elements looked for– not found
			T	– Trace	– .01– .1% approx.	X	– Not looked for

DATE September 11, 1970 **SIGNED** [redacted]

Form 14.

To: NORTH CANADIAN OILS LIMITED
640 - 7th Ave. S.W.
Calgary 2, Alberta.

File No. 3290
Date September 22nd 1970
Samples Pulps

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	Chemical U308 %	Chemical ThO2 %	MoS2 %
SLAVE RIVER Q.M.E. - 108 & 156 Northeast Alberta Canada			
Sample # 20 & 20A	.008	Trace	.002
Sample # 21	.017	Trace	.003

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

[redacted]
Licensed Assayer of British Columbia

To NORTH CANADIAN OILS LIMITED
640 - 7th Ave. S.W.
Calgary 2, Alberta.

File No. 3290
Date September 22nd 1970
Samples Pulps

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	Chemical U_3O_8 %	Chemical ThO_2 %	MoS_2 %
LAKE ATHABASCA Q.M.E. - 105 Northeast Alberta Canada			
Sample # 25 & 25 A	.006	Trace	.002
Sample # 26, 26 A & 26 B	.070	Trace	.003
Sample # 27	.085	Trace	.006
Sample # 28	.060	.035	.003
Sample # 29	.051	.018	.003
Sample # 30 A	.012	Trace	.001
Sample # 34	.030	.018	.002

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

[redacted]

Licensed Assayer of British Columbia

To: NORTH CANADIAN OILS LIMITED
640 - 7th Ave. S.W.
Calgary 2, Alberta.

File No. 3290
Date September 22nd 1970
Samples Pulps

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	Chemical U308 %	Chemical Tho2 %	MoS2 %
LAKE ATHABASCA Q.M.E. - 104 Northeast Alberta Canada			
Sample # 45	.048	Trace	.001
Sample # 47	.024	Trace	.001
Sample # 48	.070	Trace	.002
Sample # 49	.085	Trace	.003
Sample # 52	.055	Trace	.001

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

[redacted]

Licensed Assayer of British Columbia

ASSAY REPORTS

Notes: All of the samples described were submitted to Core Laboratories-Canada Ltd., Calgary, Alberta, on August 13, 1970, for Uranium (U_3O_8%) and Thorium (ThO_2%) assays of each sample and a general semiquantitative spectrographic analysis of grouped samples, as given in the analyses. The results of these assays were reported on September 21, 1970.

On this date several (14) selected pertinent samples were submitted to Loring Laboratories Ltd., Calgary, Alberta, for a check on the Uranium and Thorium assays of Core Lab. Loring Lab also analyzed for Molybdenum (MoS_2%). The Loring Lab assay results showed the Uranium to be of a higher percentage than the Uranium assays by Core Lab.

Core Lab rechecked several samples and concluded to redo the entire Uranium assays. The final assay reports of Core Lab were received November 24, 1970 and are presented herewith. Only the analyses for Uranium (U_3O_8%) were repeated by Core Lab.

Core Lab prepared the samples by grinding, digestion and analyzed for Uranium by the fluorometry method and for Thorium by the X-ray method. Loring Lab accepted the "pulp rejects" (finely ground material) of Core Lab, reground the sample material to a finer grained sample, applied a radiometric-equilibrium analysis to obtain the degree of Uranium content and made a chemical assay for the final Uranium (U_3O_8) percentage. The Thorium (ThO_2) percentage content was performed by a chemical assay by Loring Lab. Mr. Loring McIsaac, Chief Assayer, Loring Lab, pointed out that extremely fine grinding is necessary for accurate Uranium and Thorium assays.

The assays of Loring Lab and the final assays of Core Lab agree fairly well with respect to Uranium and are accepted as representative of the respective samples. However, there is a disagreement in the Thorium assays for samples from Q.M.E. Nos. 105 & 108 between the two laboratories.

The sample material over Q.M.E. No. 104, especially over the radiation anomalies was difficult to collect. The rocks are very solid and hard and relatively unweathered. It was necessary to break off sample material at the very shallow corners of joints and fractures, using only a hand-hammer. The sample material over Q.M.E. No. 105 was much easier to obtain because of the surface-blast area; however, fully representative surface samples from this area were difficult to select.

All of the Core Lab semiquantitative general spectrographic sample-group analyses show varying minute quantities of the rare earth elements, especially conspicuous is the quantity of Lanthanum (La_2O_3%) in the samples of Group 1 and 2 of Q.M.E. No. 108, located mostly without the north-shore Snake Lake ground radiation anomaly. The amounts of Lanthanum would only be interesting economically as an accessory if commercial quantities of some other mineral or metal happen to be present.

The quantity of Thorium (ThO_2%) is mostly less than 0.01% except for the samples collected over the surface-blast area of Q.M.E. No. 105 (0.01-0.06%), which of course adds to the gamma ray radiation. The samples collected over the radiation area of Q.M.E. No. 108 show up to 0.05% ThO_2 (Sample No. 20) with practically nil Uranium. This may be a sufficient Thorium rock content to have caused the high airborne Thorium radiation anomaly, located in the field along the north-shore of Snake Lake and associated (in location) with faulting and located by the airborne radiation as shown on the air-photo map. The Thorium content of all the samples collected from Q.M.E. No. 104 is all less than 0.01% by Core Lab and only a Trace by Loring Lab. The low Thorium content in itself would indicate Q.M.E. No. 104 to be a better Uranium prospect.

The Core Lab spectrographic analyses all show phosphorus as "Not Detected". The tentative determination by the writer of the Uranium mineral being Autunite, a hydrous phosphate of uranium and calcium, is in disagreement with this assay result. However, a simply chemical spot-test by the writer for phosphorus is affirmative for both the yellow and green colored mineralization,

confirming the phosphorus content for the samples with yellow and yellow to green coloration and the writer's determination of these minerals as being Autunite (a hydrous phosphate of uranium and calcium) and Uranospathite (a hydrated uranyl phosphate). The field chemical spot-test performed is as follows —

apply a small amount of finely ground Ammonium Molybdate to a rock surface (by a common salt shaker) and add a few drops of Nitric Acid; if the rock contains phosphorus, a bright yellow color forms within about one minute. The difference in speed with which the spot chemical reaction takes place suggests the variation in the amount of phosphorus present. Should this test be performed by solutions the solutions should be kept cold as Arsenic gives a similar yellow precipitate in a hot solution.

John D. Hale

JOHN D. HALE, P. Geol. (Alta.)

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1917

CORE LABORATORIES - CANADA LTD.
Petroleum Reservoir Engineering

P.O. BOX 5670, POSTAL STATION "A"
CALGARY 9, ALBERTA
TELEPHONE: 253-3391

Company: North Canadian Oils Ltd.
Pulp Samples

File: CAL-2-2465
Date: December 3/70

Analysis

Sample	PO_4 Weight %	P Weight %
26	0.27	0.09
26A	0.12	0.04
26B	0.10	0.03
45	0.06	0.02
48	ND	ND
49	0.06	0.02

ND - Less than 0.01% PO_4

Company: North Canadian Oils Ltd.
Pulp Samples

File: CAL-2-2465
Date: December 3/70

Comments Regarding Semi-Quantitative Analysis:

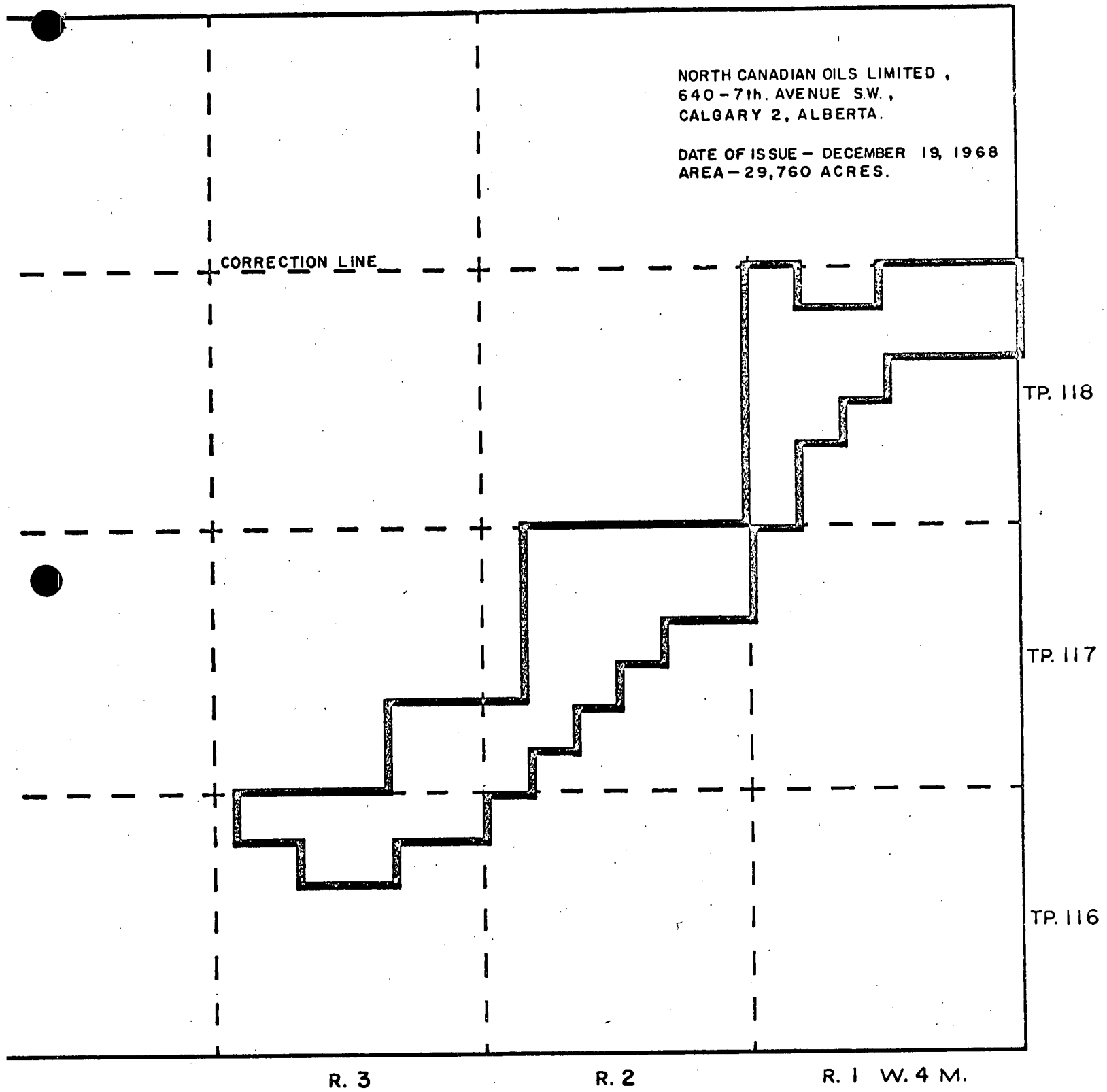
As shown on Page 1, certain samples contain phosphate ions and this presence of phosphorous in the phosphate form was not detected in the semi-quantitative spectrographic analysis. This discrepancy between the gravimetric determination of the phosphate ion and the semi-quantitative spectrographic analysis of the element phosphorous is explained by the different detection limits involved in both procedures. In the gravimetric method, the phosphate ions have three times the weight of the phosphorous element and are therefore more easily and accurately analysed. When phosphorous is determined semi-quantitatively by the spectrographic method, it is usually undetected when present in amounts less than 0.1%.

When evaluating the results of a semi-quantitative spectrographic analysis, one should remember that the detection limit varies with each element and that some elements are harder to detect than others. This is the reason that this type of analysis is called semi-quantitative and that fact is reflected by its cost. The analysis costs $20.00 for the determination of 55 elements and is a fast method of getting a "birdseye view" of the major constituents of the sample, however, its reliability for some elements is not absolute. Phosphorous is a good example of the unreliability of this type of analysis.

[redacted]
P.J. Samson

LAND PLATS and NOTES

QUARTZ MINERAL EXPLORATION PERMIT No. 104



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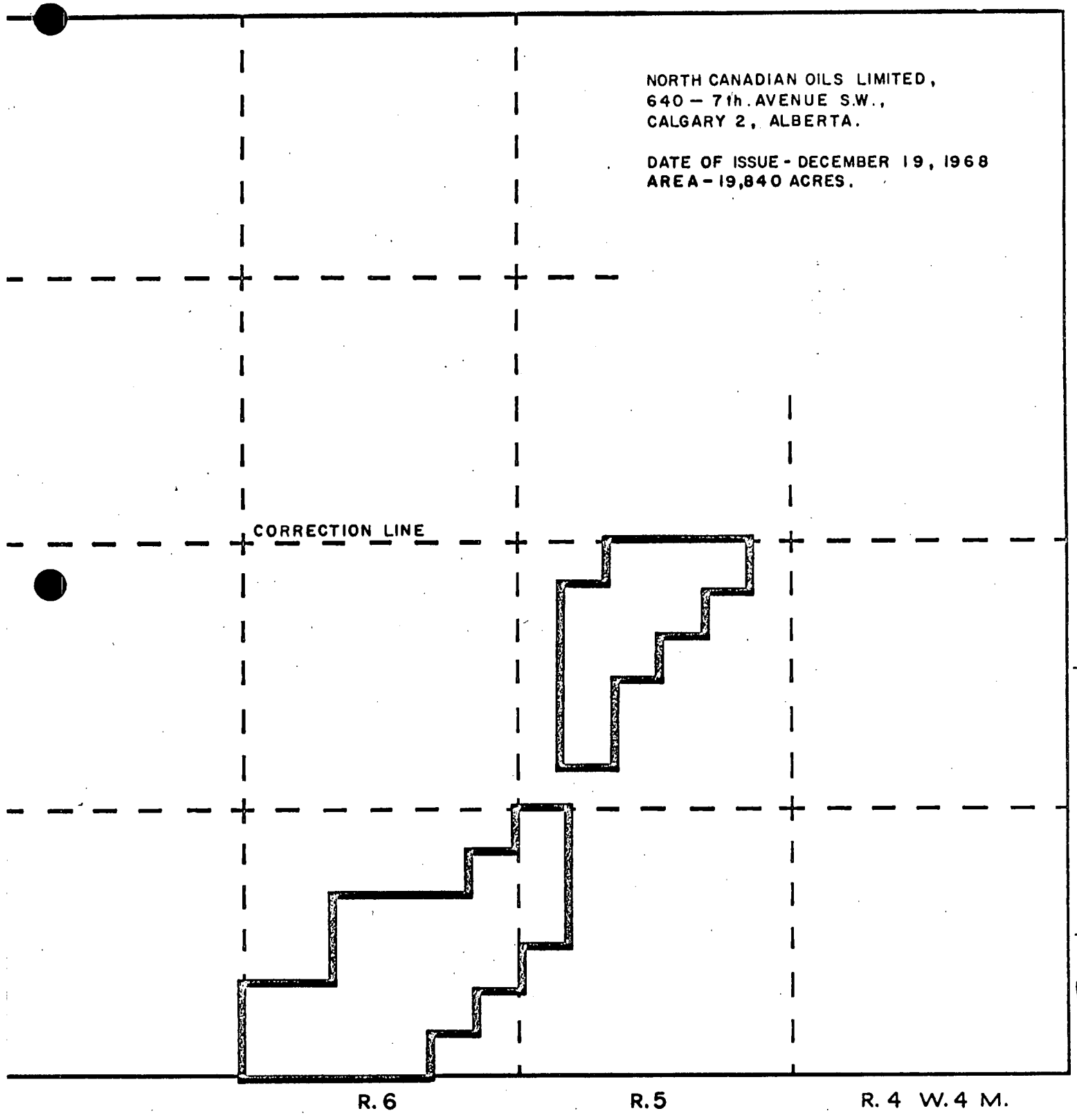

1970006

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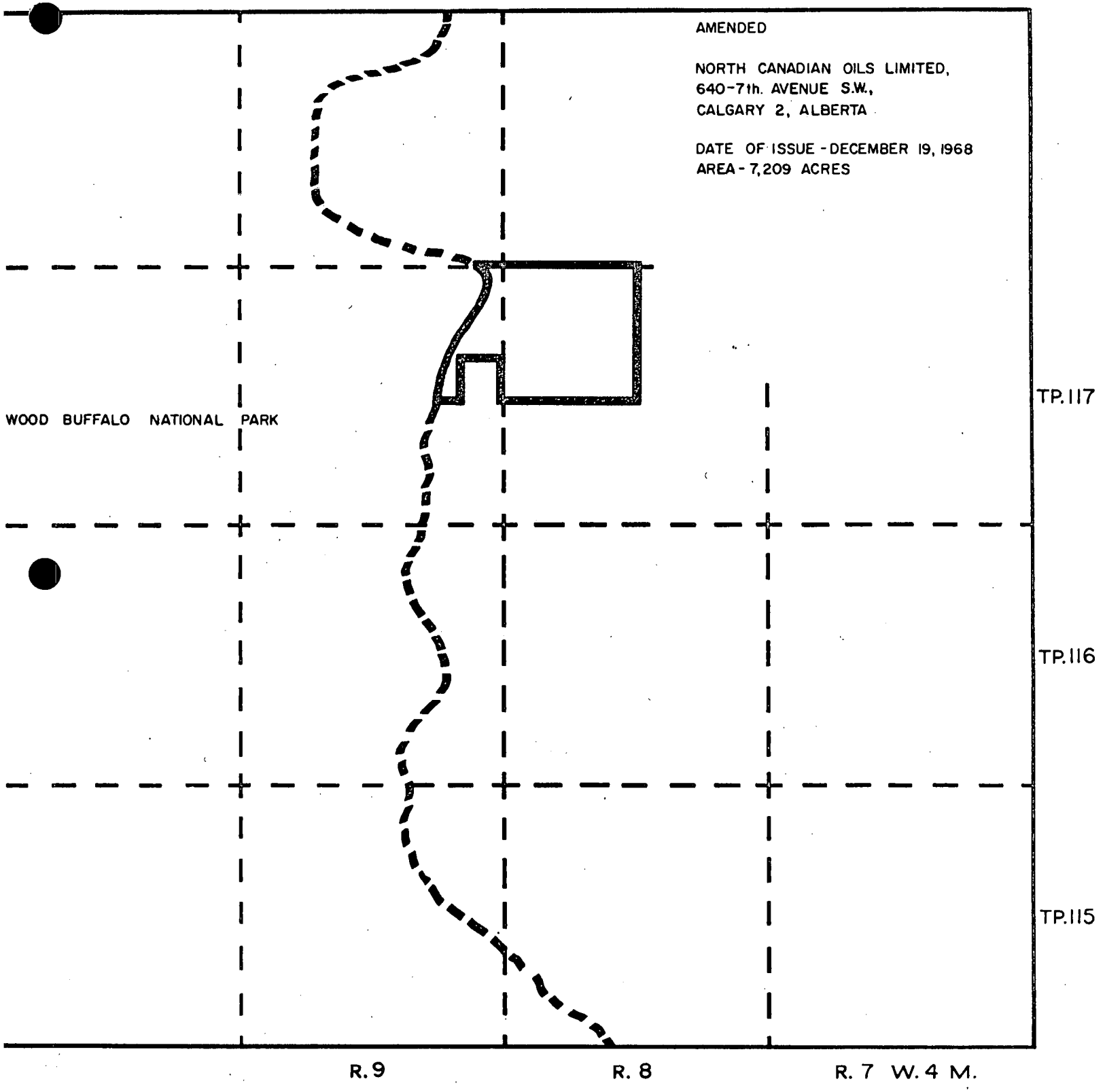

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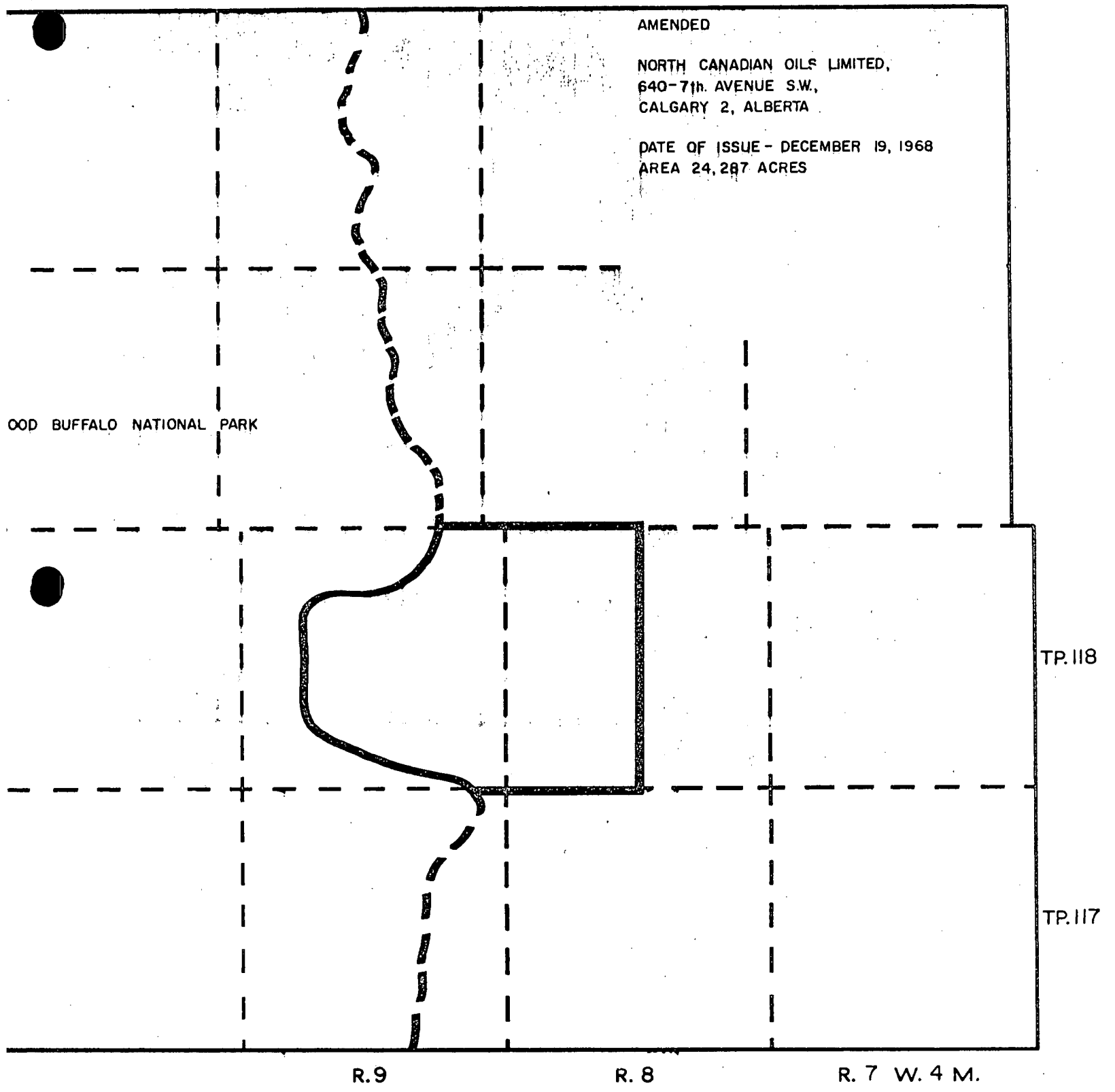

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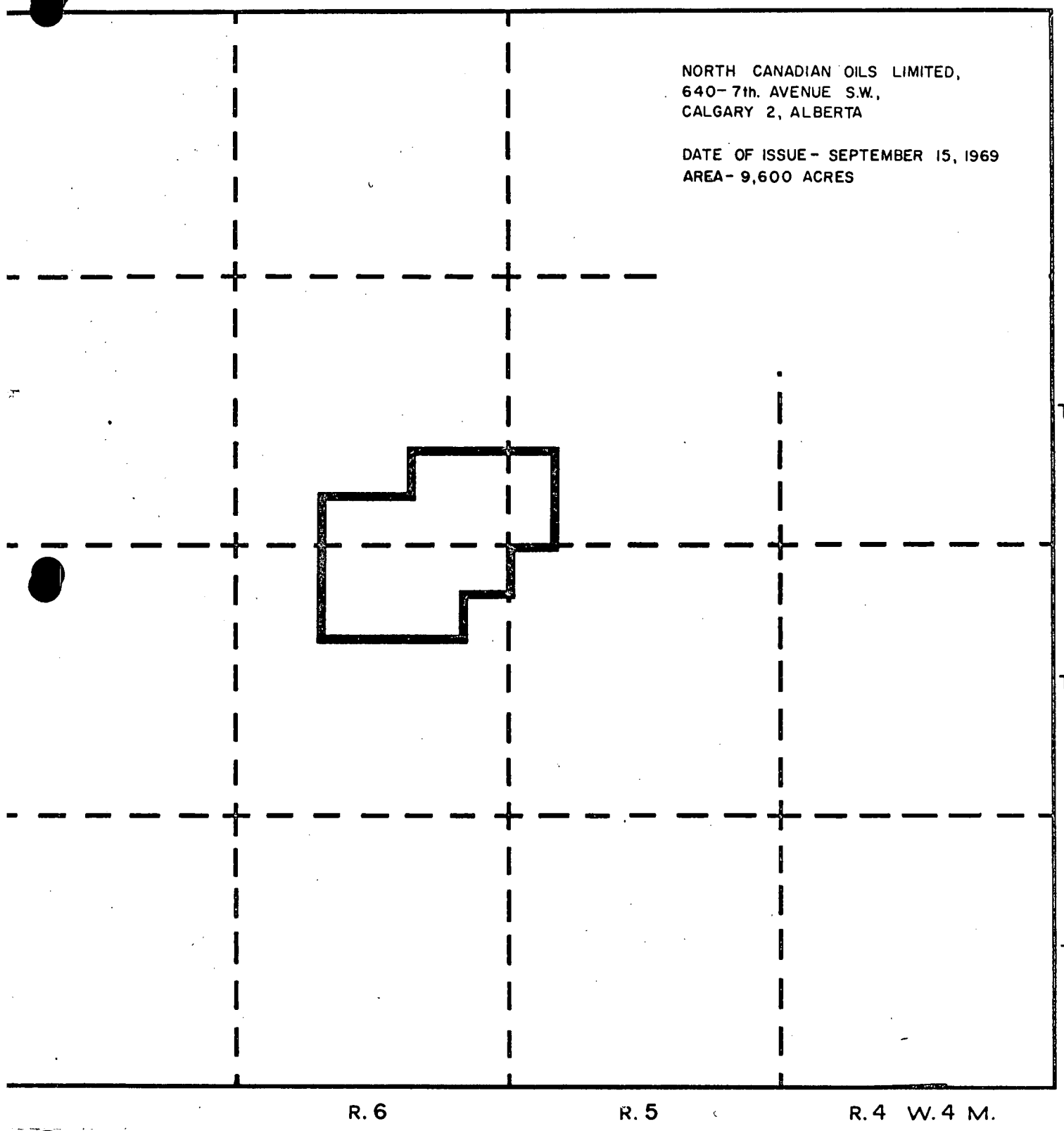

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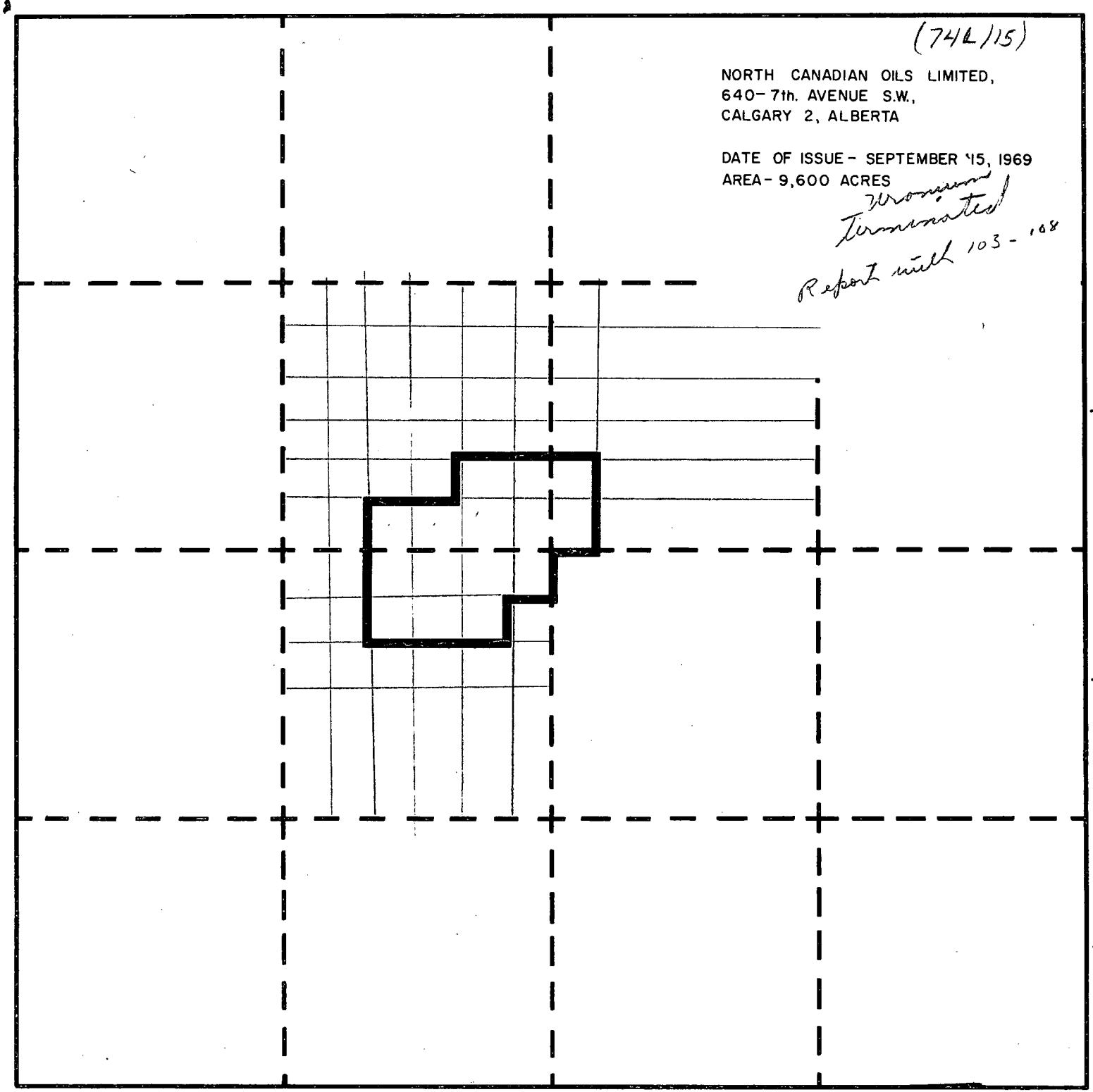

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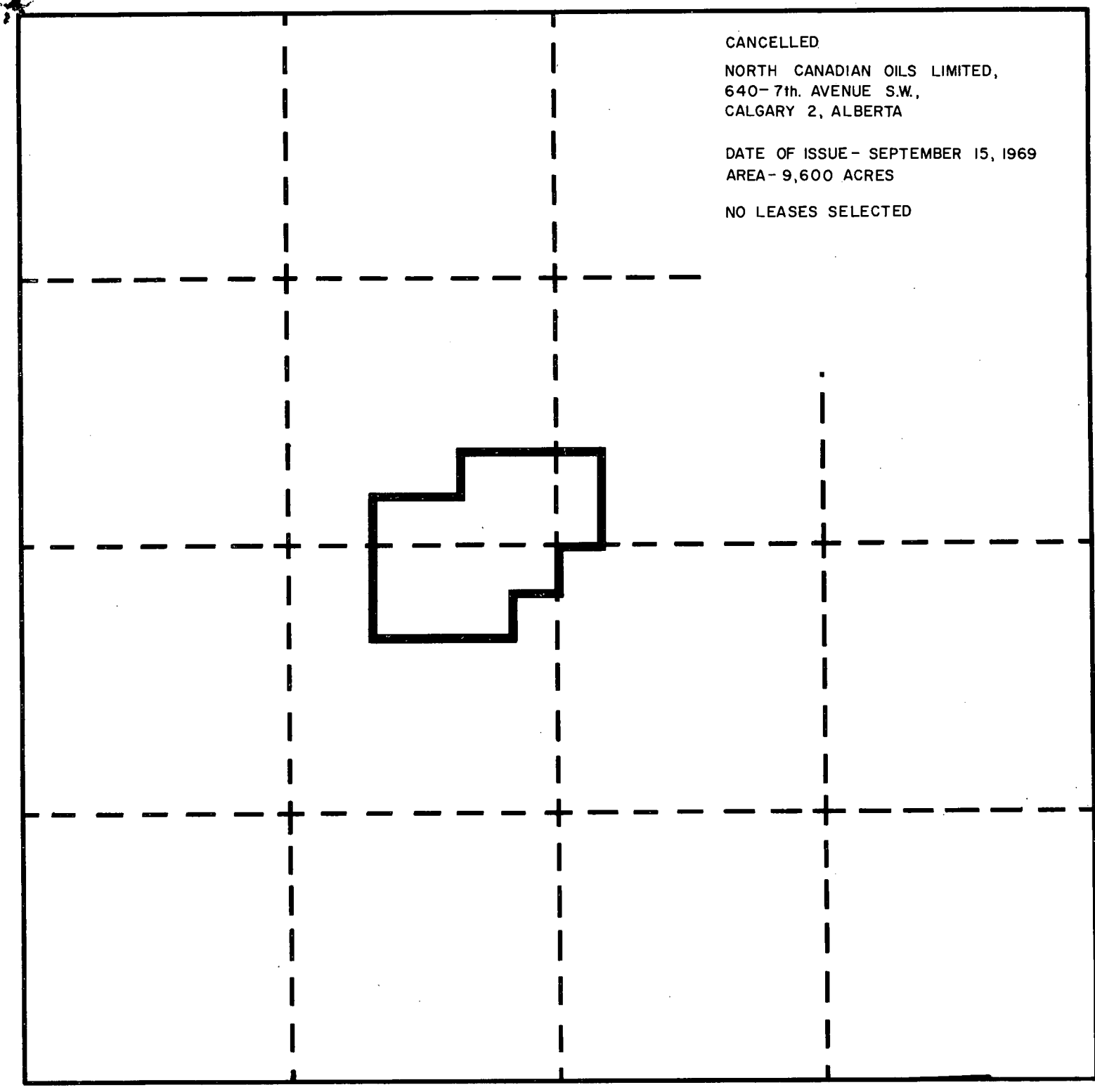

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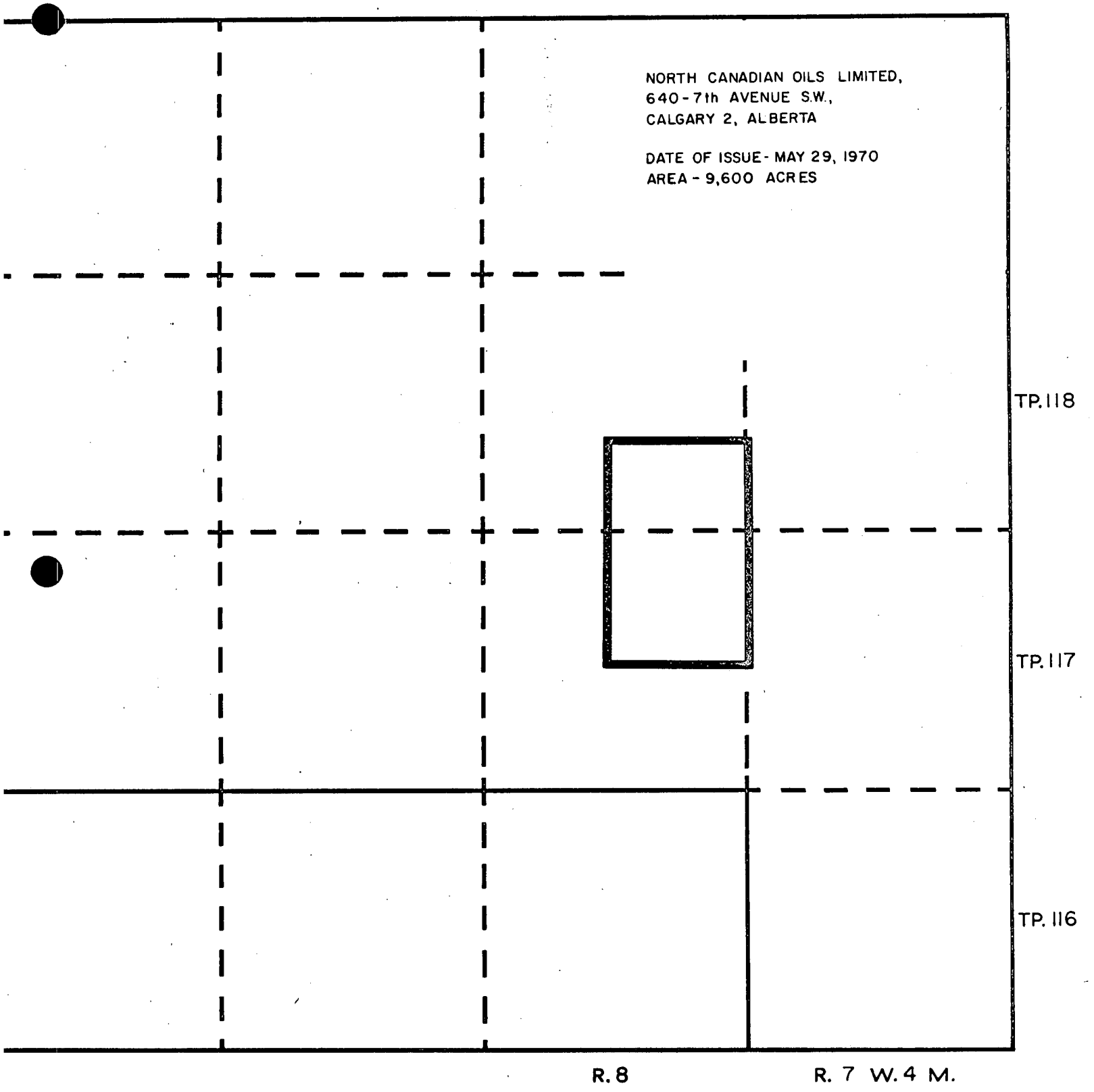
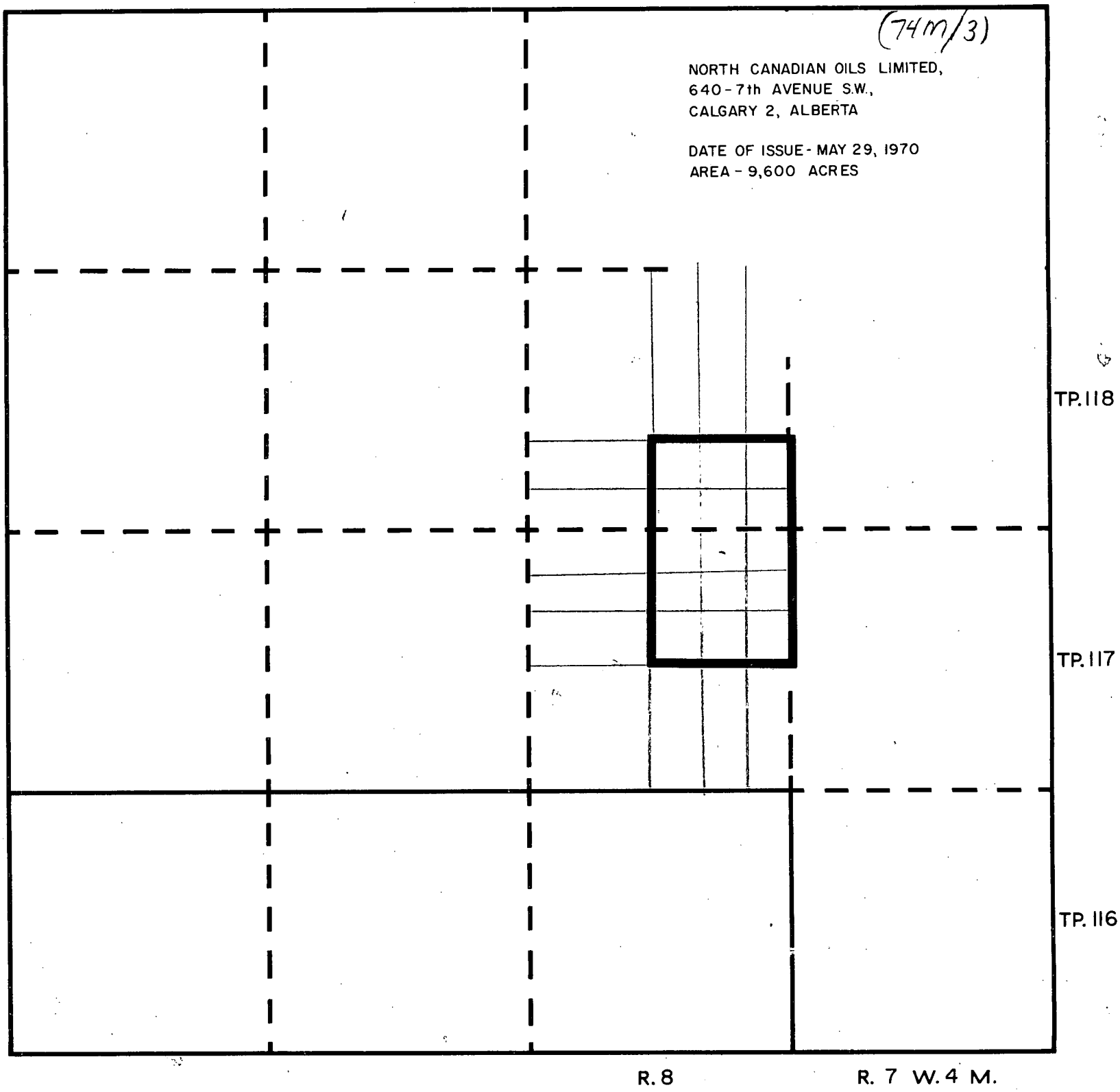


QUARTZ MINERAL EXPLORATION PERMIT No. 156

(74M/3)

NORTH CANADIAN OILS LIMITED,
640 - 7th AVENUE S.W.,
CALGARY 2, ALBERTA

DATE OF ISSUE - MAY 29, 1970
AREA - 9,600 ACRES



TELEPHONE NO. 229-3919 RJJ/pmr PLEASE QUOTE FILE NO.

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND FORESTS

NATURAL REBOURCES BUILDING

109TH STREET AND 99TH AVENUE

EDMONTON 6, ALBERTA

November 24, 1969.

Re: Q.M.E. Permit No. 104
(Discrepancies in Theoretical township grid between Alberta Map 74M/I and the NTS Map No. 74/M)

ATTENTION: Mr. B. L. Cook.

Dear Sir:

With reference to your visit to this office yesterday in which you pointed out to me the discrepancies in the theoretical township grid between our Map Number 74 M/I and the national topographic series Map Number 74/M, I wish to advise that our cartography section has investigated this matter, but can come to no conclusion on which map is right and which is wrong.

Both maps match perfectly along the Slave River and along the surveyed portion of the 30th base line. All discrepancies show up east of the river and as the bases for both maps was done in Ottawa we have absolutely no way of knowing which map is in error.

You indicated to me that there was a considerable amount of money involved in the mineral lease which your company obtained and since your lease area lies in unsurveyed territory I can only suggest that you hire an Alberta Land Surveyor to project the 30th base line the thirty miles eastward so that you would have an adequate control point on the ground.

I regret that I can offer you no other solution or suggestion to your problem.

Yours very truly,

For: T. A. Drinkwater,
Director, Technical Division.

North Canadian Oils Limited,
640 Seventh Avenue, S.W.,
CALGARY 2, Alberta.

LAND PLATS

Notes: The land plats are provided by the Alberta Department of Mines and Minerals, and the Quartz Mineral Exploration Permits are described by section, township and range, west of the Fourth Meridian. The Department of Mines and Minerals land plats are based on their map entitled - - "Quartz Mineral Dispositions, Lake Athabasca Area, Alberta", scale: 2 miles to 1 inch. This map in turn is based on the map by the Alberta Department of Lands and Forests, Forest Surveys Branch, published in 1955, the base for which was constructed in Ottawa. All culture and lakes for the Alberta map are derived from aerial photographs 1949-1951, 1:40,000 series.

The mapping for this report was conducted from the aerial photographs 1949-1951, 1:40,000 series. The fiduciary points for surface locations are inland lakes and and Lake Athabasca north coast-line irregularities.

The Alberta maps 74M1 and 74M8 (scale: 1" = 1 mile) do not agree with the National Topographic Series (NTS) map 74M (Fitzgerald - scale: 1" = 4 miles) with respect to the position of the Lake Athabasca north coast-line or the inland lakes. The agreement between the two maps is perfect in the Fort Chipewyan area along the Slave River and Wood Buffalo National Park and along the Thirtieth Base Line (Townships 116-117). This perfect agreement extends over and easterly beyond Quartz Mineral Exploration Permit Nos. 105 and 142.

However, farther east there is considerable disagreement between the surveys of the two maps respecting the Lake Athabasca north coast-line and inland lakes. This disagreement is in survey direction as well as departure. The NTS survey is as much as a mile and 15 degrees south of the Alberta map and Q.M.E. plats in the vicinity of Fidler Point, southwest portion of Q.M.E. 104. However, there is a practical close agreement along

the Thirtieth Base Line north of Greywillow Point, northeast portion of Q.M.E. 104 adjacent to the Fourth Meridian (agreement as accurately as can be plotted on aerial photographs). A north-south cut line for the Fourth Meridian can be noted and properly located on the aerial photographs, but no east-west cut line is apparent on the aerial photographs for the Thirtieth Base Line north of Greywillow Point.

The writer has based all of the mapping survey locations on the Alberta Department of Mines and Minerals map (lakes, Lake Athabasca north coast-line, etc.) and has plotted the NTS survey Townships and Ranges (end points) on the aerial photographs, using lakes and Lake Athabasca north coast-line as fiduciaries as taken from the NTS Fitzgerald map.

JOHN D. HALE, P. Geol. (Alta.)

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA
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AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
CERTIFIED PETROLEUM GEOLOGIST
JOHN D. HALE
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1917

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Map 2

WOOD

BUFFALO

PARK

Permit No. 108
(Surrendered)

Permit No. 108
(Renewed)

Permit No. 108
(Renewed) Photo No. 1

Th. Anomaly

Permit No. 156
(New)

Permit No. 107
(Renewed)

Permit No. 107
(Surrendered)

Permit No. 106
(Surrendered)

P.M.E. Nos. 107, 108 & 156
Slave River

Aerial Photo Index Map

JOHN D. HALE CONSULTING LTD.

74-M-6

= 2X Enlargements

JOHN D. HALE CONSULTING LTD.

JOHN D. HALE CONSULTING LTD

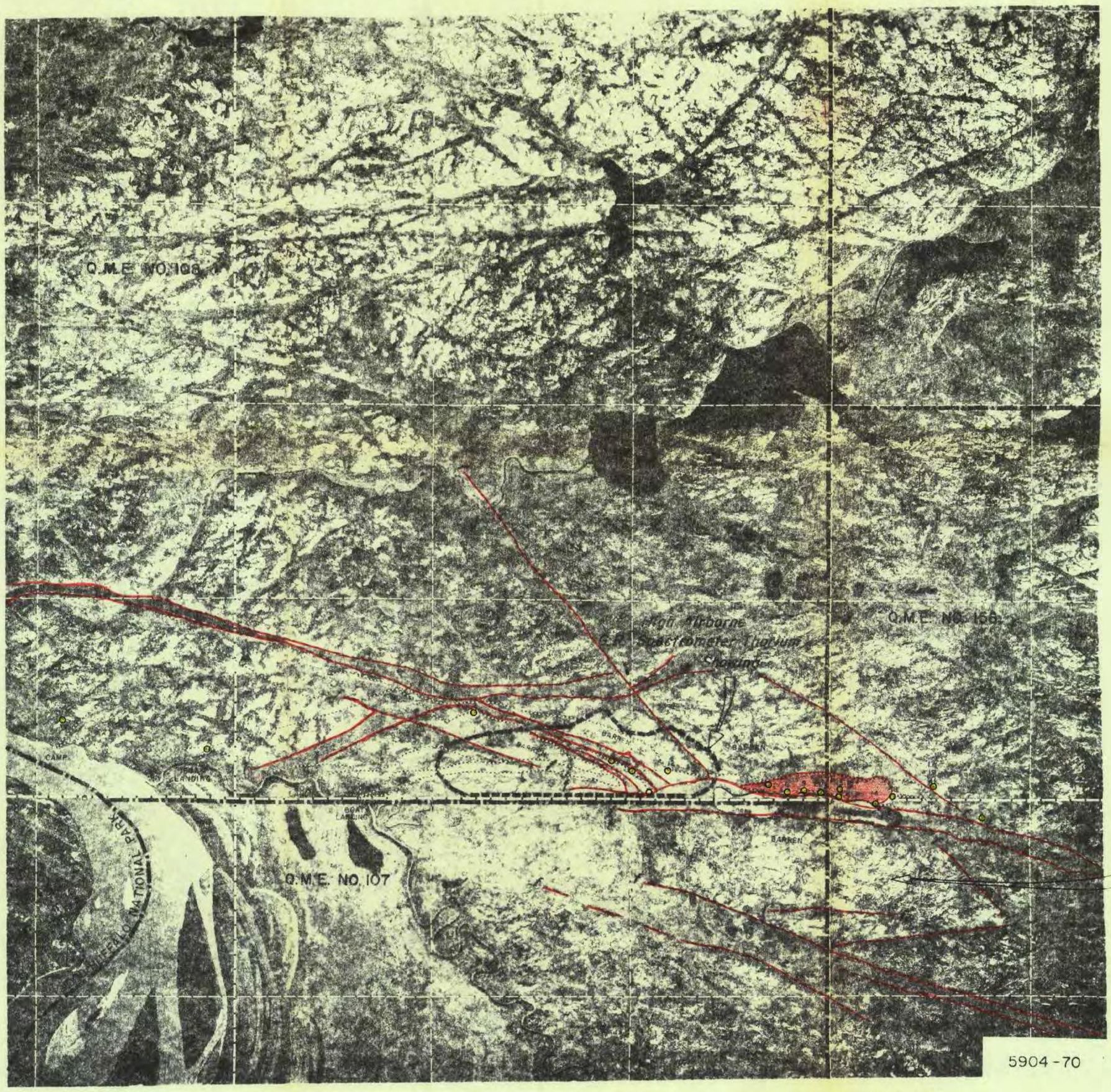
[redacted]

RG. 9

RG. 8 W. 4 M.

TP. 118

TP. 118



TP. 117

TP. 117

5904-70

RG. 9

RG. 8 W. 4 M.

SLAVE RIVER

Northeast Alberta, Canada

Quartz Mineral Exploration Permit Nos. 107, 108 & 156

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 1 OF ONE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949-1951 PHOTOGRAPHY — 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970

CALGARY, ALBERTA

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- SECTION LINES
- TOWNSHIP and RANGE LINES
- PERMIT OUTLINES
- SURFACE TRAVERSES
- FAULTS — INTERPRETED FROM FIELD OBSERVATIONS and AIRPHOTOS
- SAMPLE LOCATIONS (see Assays)
- GAMMA RAY RADIATION AREAS
- LAKE OUTLINE

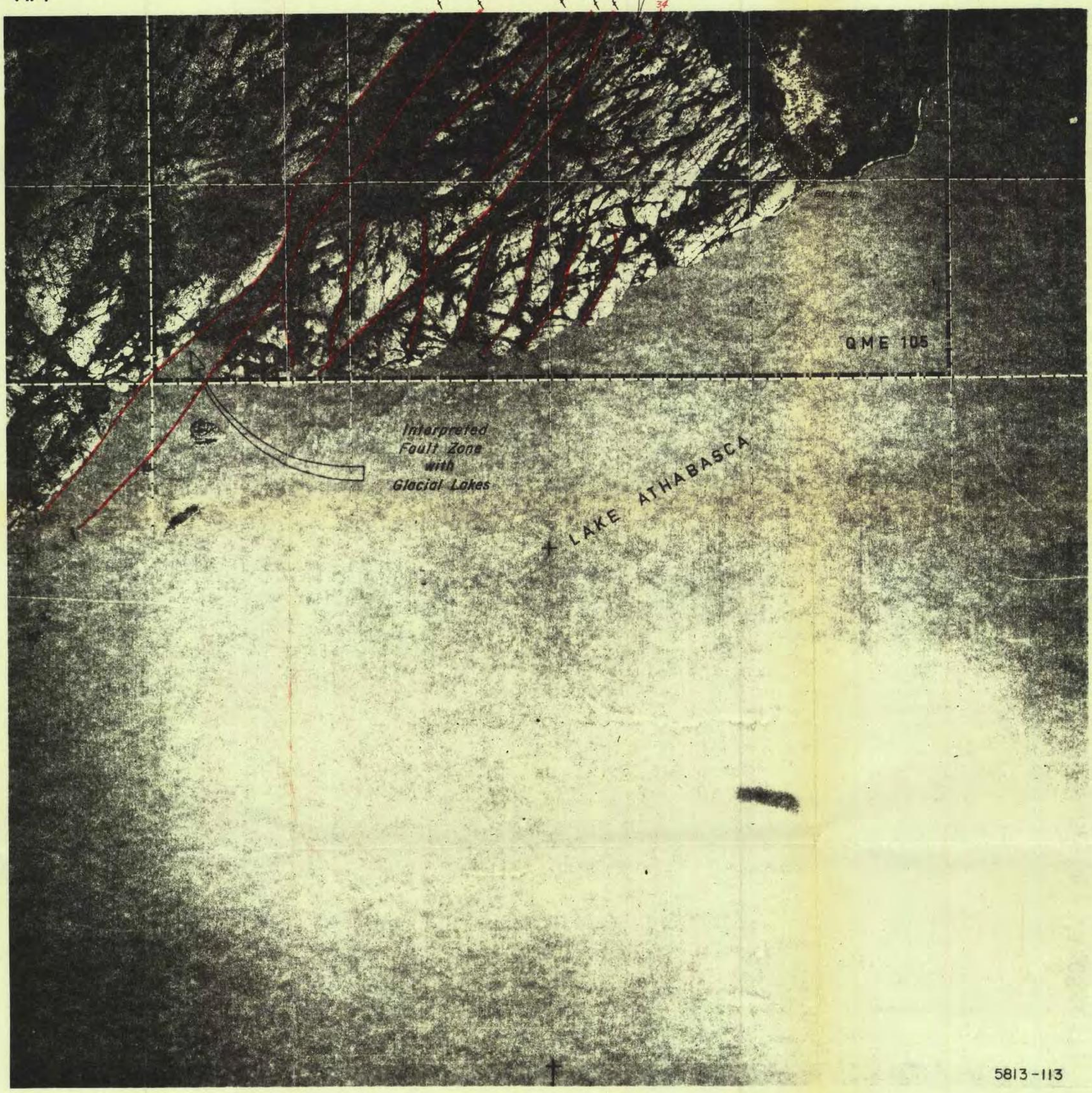
1970006
Map 2

SURFACE BLAST-RADIATION AREA
36,000-40,000 CPM.
2 OLD ◊ DRILL HOLES

R. 7 — R. 6 W. 4 M.

T. 113 — T. 113

T. 112 — T. 112



5813-113

R. 7 — R. 6 W. 4 M.

LAKE ATHABASCA

No. 1
1700006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 105 & 142

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 1 OF SIX
SCALE 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949-1951 PHOTOGRAPHY — 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 67 — CALGARY, ALBERTA

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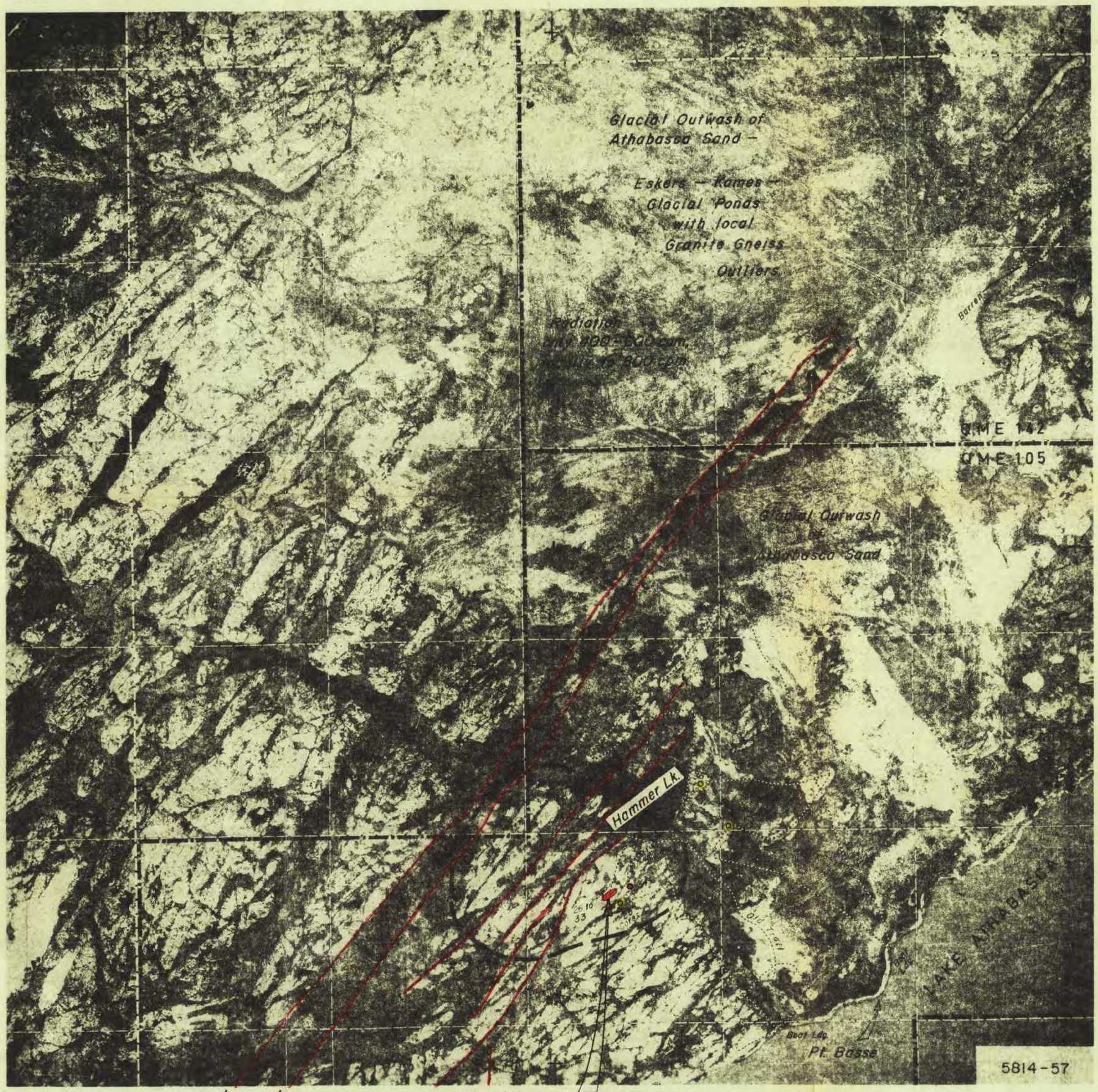
- ANOMALOUS RADIATION AREA

R. 7

R. 6 W. 4 M.

T. 114

T. 113



SURFACE BLAST – RADIATION AREA
36,000 – 40,000 CPM.
2 OLD ◇ DRILL HOLES

R. 7

R. 6 W. 4 M.

T. 114

T. 113

No. 2
1970006

LAKE ATHABASCA

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 105 & 142

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 2 OF SIX
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949 – 1951 PHOTOGRAPHY – 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970 CALGARY, ALBERTA

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- AREA of URANIUM INTEREST – Geologic (Photo Interpretation), Surface Radiation, Sample Assay.
- ANOMALOUS RADIATION AREA

R. 6 — R. 5 W. 4 M.

T. 114 — T. 114

T. 113 — T. 113

LAKE ATHABASCA

No. 3

19700006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 105 & 142

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO 3 OF SIX
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949-1951 PHOTOGRAPHY – 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970 — CALGARY, ALBERTA

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R. 6 — R. 5 W. 4 M.

T. 114 — T. 114

T. 113 — T. 113

R. 6 — R. 5 W. 4 M.

LAKE ATHABASCA

No. 4
1700006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 105 & 142

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 4 OF SIX
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949-1951 PHOTOGRAPHY — 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970 — CALGARY, ALBERTA

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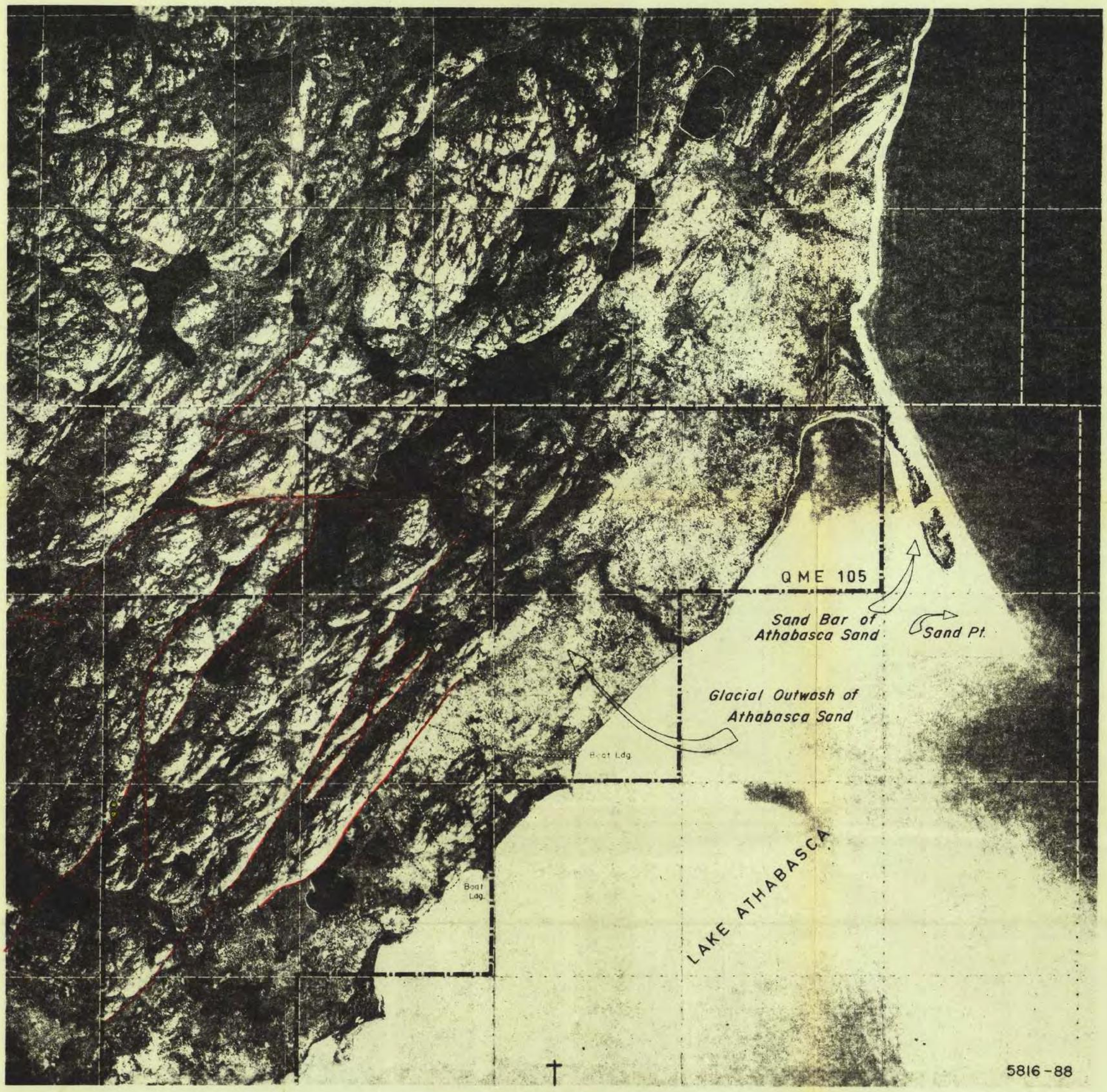
- ANOMALOUS RADIATION AREA

R. 5 W. 4 M.

R. 4

T. 115

T. 115



T. 114

T. 114

R. 5 W. 4 M.

LAKE ATHABASCA

No. 6
1970006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 105 & 142

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO 6 OF SIX
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT LANDS & FORESTS
1949-1951 PHOTOGRAPHY — 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV 1970

CALGARY, ALBERTA

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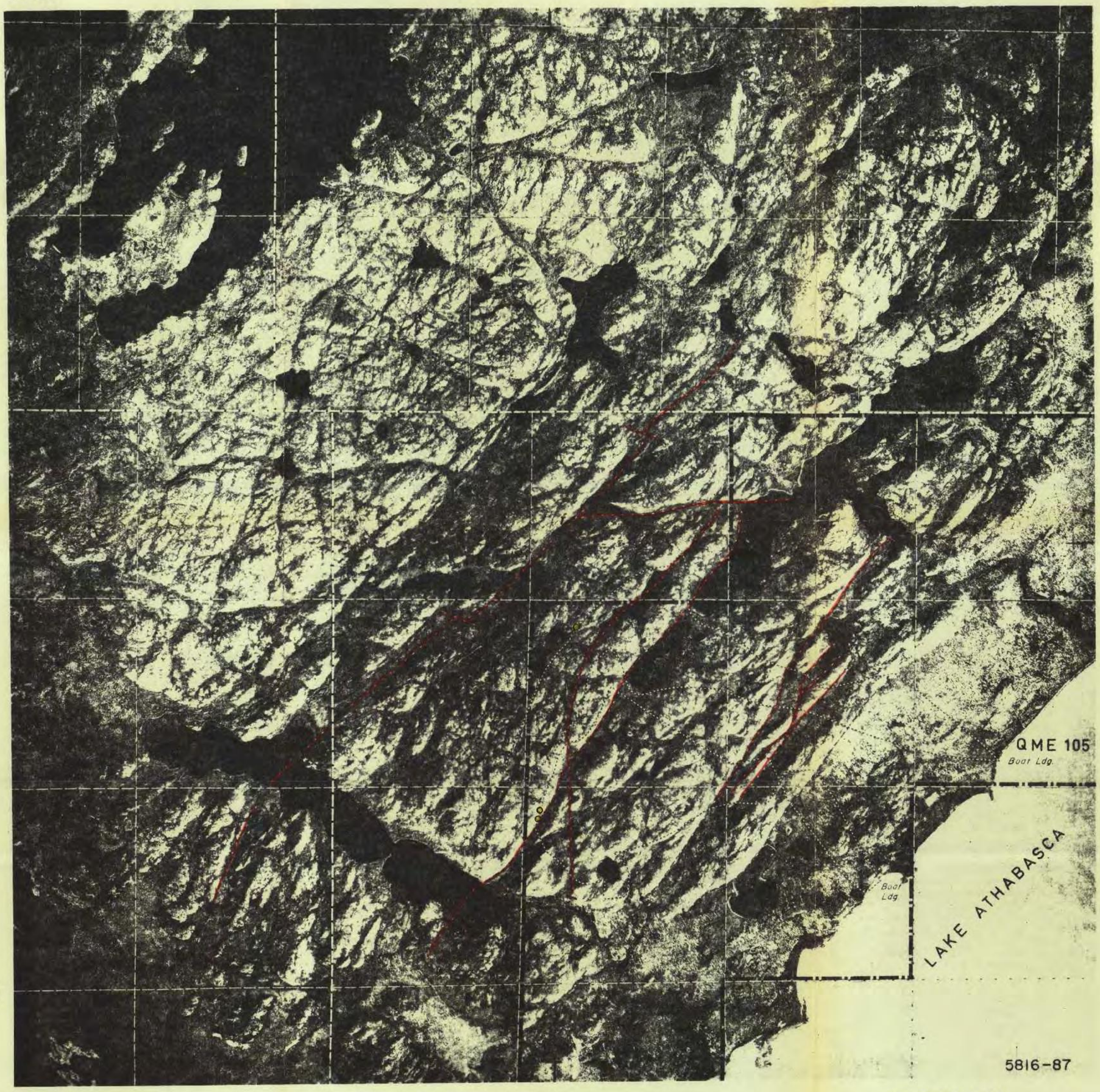
- AREA of URANIUM INTEREST — Geologic (Photo Interpretation), Surface Radiation, Sample Assay
- ANOMALOUS RADIATION AREA

R. 6

T. 115

R. 5 W. 4 M.

T. 115



T. 114

T. 114

R. 6

R. 5 W. 4 M.

LAKE ATHABASCA

No. 5
1970006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 105 & 142

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 5 OF SIX
SCALE. 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949 - 1951 PHOTOGRAPHY – 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE NOV 1970 CALGARY, ALBERTA

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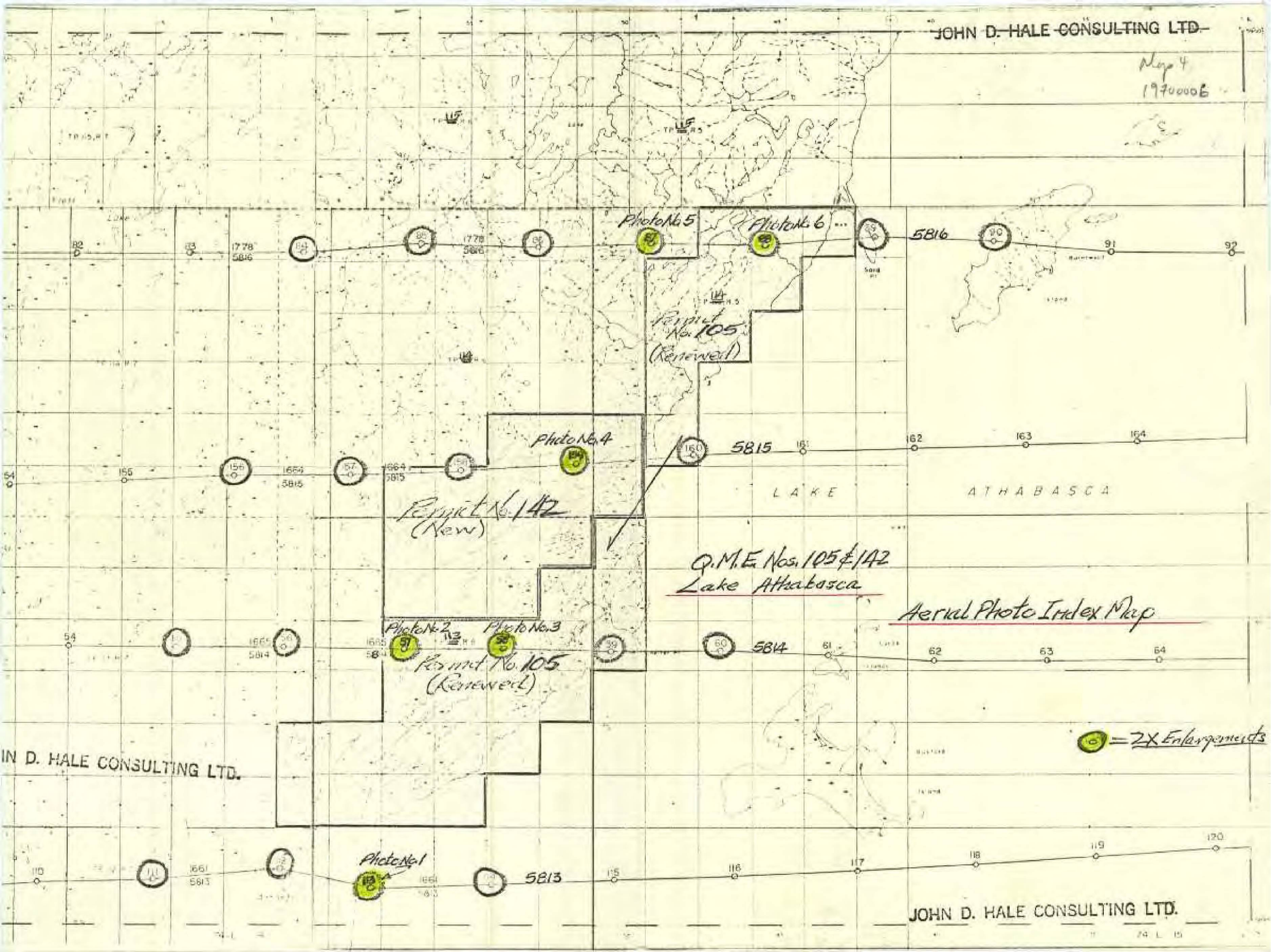
- SAMPLE LOCATIONS (see Assays)
- AREA of URANIUM INTEREST – Geologic (Photo Interpretation), Surface Radiation, Sample Assay.
- ANOMALOUS RADIATION AREA


JOHN D. HALE CONSULTING LTD.
Map 4
1970000E
Photo No. 5
Photo No. 6
Permit No. 105 (Renewed)
Photo No. 4
Permit No. 142 (New)
Photo No. 2
Photo No. 3
Permit No. 105 (Renewed)
Photo No. 1
LAKE ATHABASCA
Q.M.E. Nos. 105 & 142
Lake Athabasca
Aerial Photo Index Map
= 2X Enlargements
JOHN D. HALE CONSULTING LTD.

1970 0006
Map 3

R. 6

R. 5

Q.M.E. NO. 105
INDEX MAP

SHOWING ANOMALOUS AIRBORNE
RADIATION AREAS
SURVEYED DURING SUMMER 1969
FOR SURFACE FIELD
HAND-SCINTILLOMETER CHECKING
DURING SUMMER 1970

ANOMALY IN COUNTS PER SECOND
GAMMA RADIATION ABOVE BACKGROUND.

SCALE IN MILES
0 1 2

SANDY POINT

105 E

PERMIT NO. 105 N.

105 D

TP. 114

TP. 113

LUCAS ISLANDS

BUSTARD ISLAND

SHELTER POINT

105 C

PERMIT NO. 105 S.

SPL S

105 A

105 B

ATHABASCA LAKE

NORTH CANADIAN OILS LTD.	
Horizontal Datum: GAMMA RAY SPECTROMETER SURVEY	Projection: 3GRS 1000
QUARTZ MINERAL PERMIT NO. 113 N.E. ALBERTA	
JUNE 1969	PARTY CHIEF: G.M. DUPRE
	APPROVED: J.T. COOK P.Geologist

ROVING EXPLORATION SERVICES LTD.

R. 4 Can. R. 3 W. 4 M.

T. 117 T. 117

T. 116 T. 116

5902-167

R. 4 R. 3 W. 4 M.

LAKE ATHABASCA

Northeast Alberta, Canada

104 - No. 1
1970006

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 1 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949-1951 PHOTOGRAPHY – 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970 CALGARY, ALBERTA

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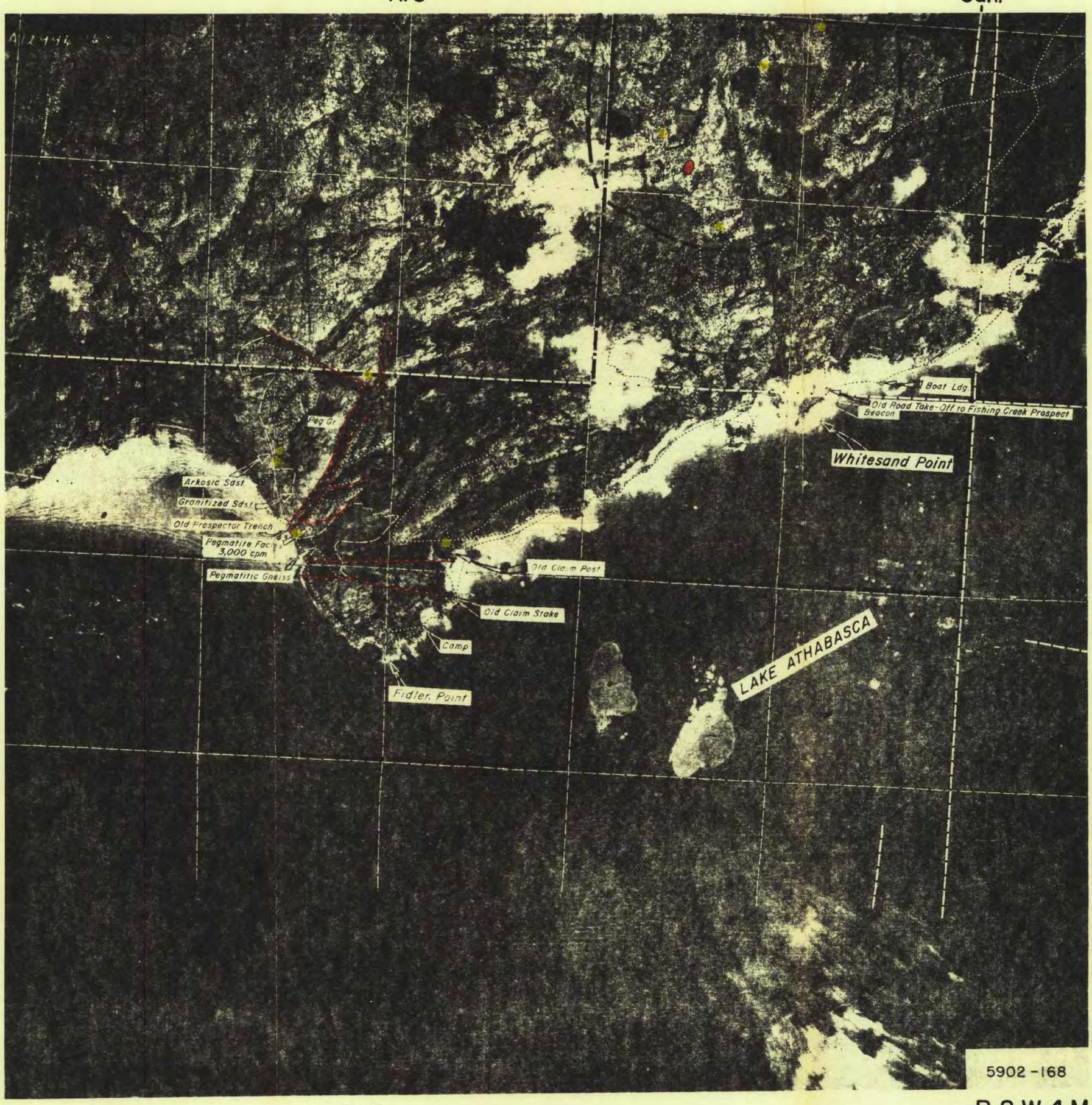
R. 3 | R. 2 W. 4 M. Can.

T. 117 | T. 117



T. 116 | T. 116

R. 3 | R. 2 W. 4 M.

LAKE ATHABASCA

Northeast Alberta, Canada

104- No.2
1970006

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 2 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949-1951 PHOTOGRAPHY – 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970 CALGARY, ALBERTA

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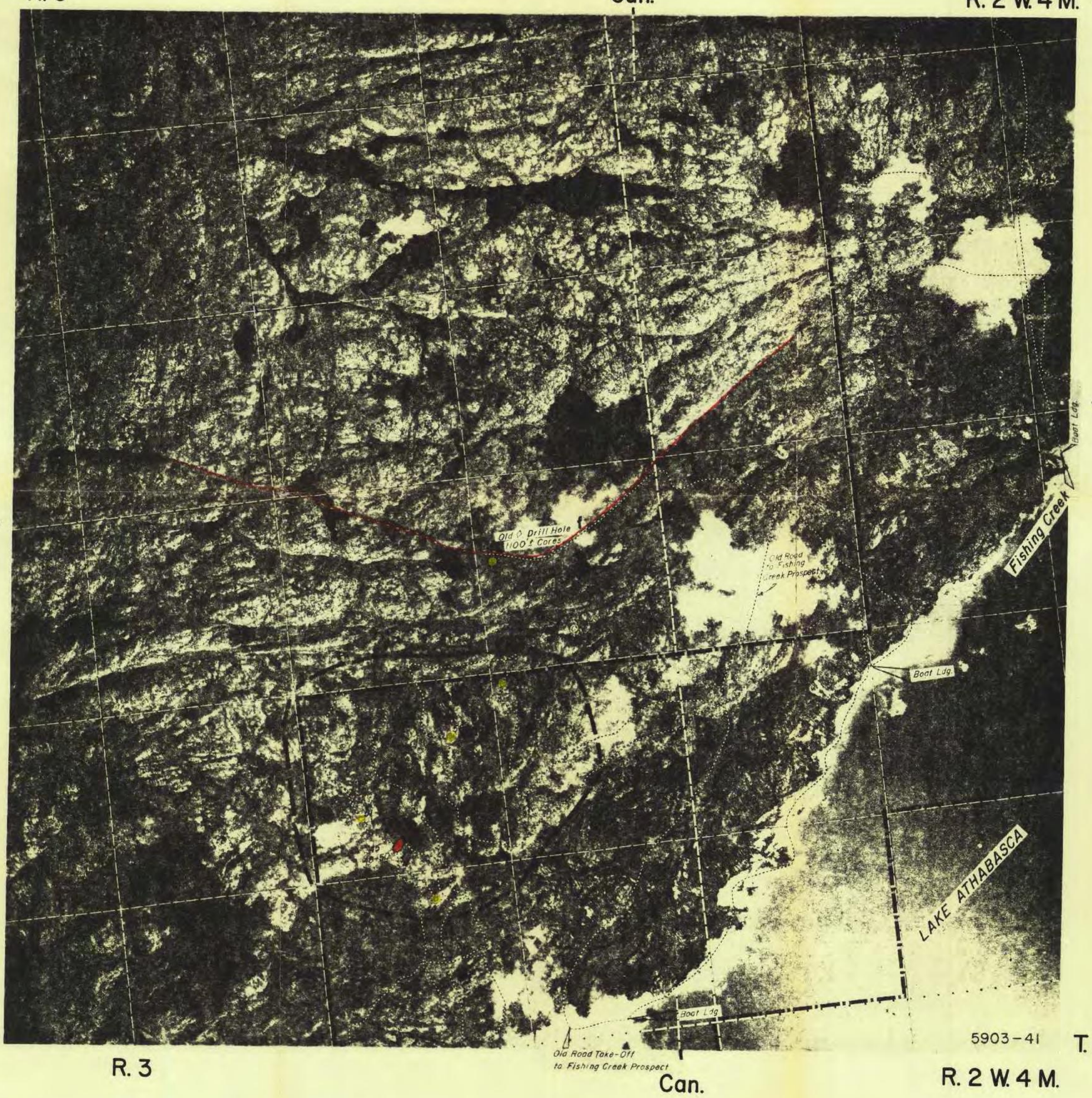

LAKE ATHABASCA

Northeast Alberta, Canada

104-No.3
1970006

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 3 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT LANDS & FORESTS
1949-1951 PHOTOGRAPHY — 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

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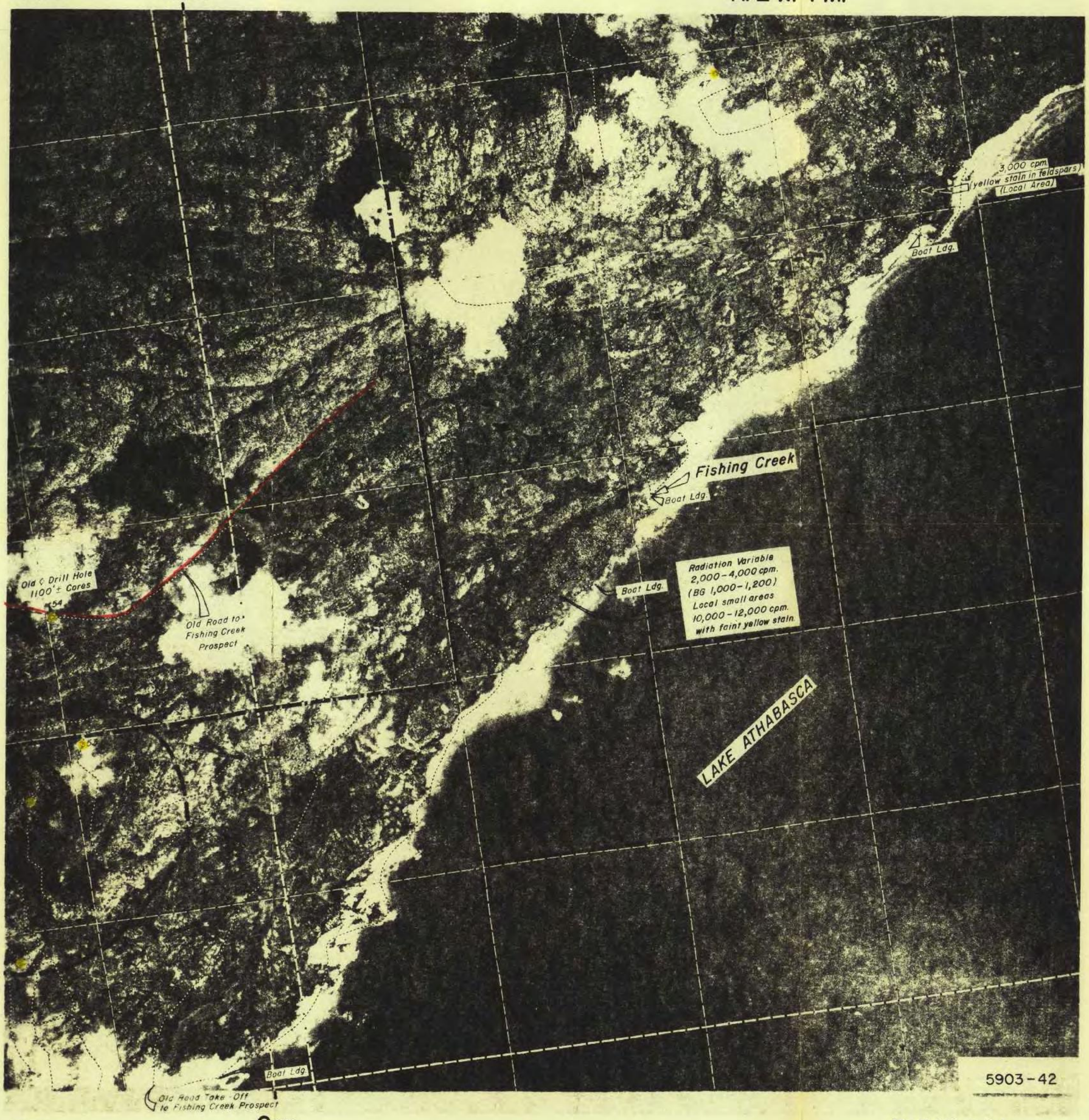
R. 3 Can. R. 2 W. 4 M.



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LAKE ATHABASCA

104 - No. 4
1970006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 4 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949 - 1951 PHOTOGRAPHY – 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970 CALGARY, ALBERTA

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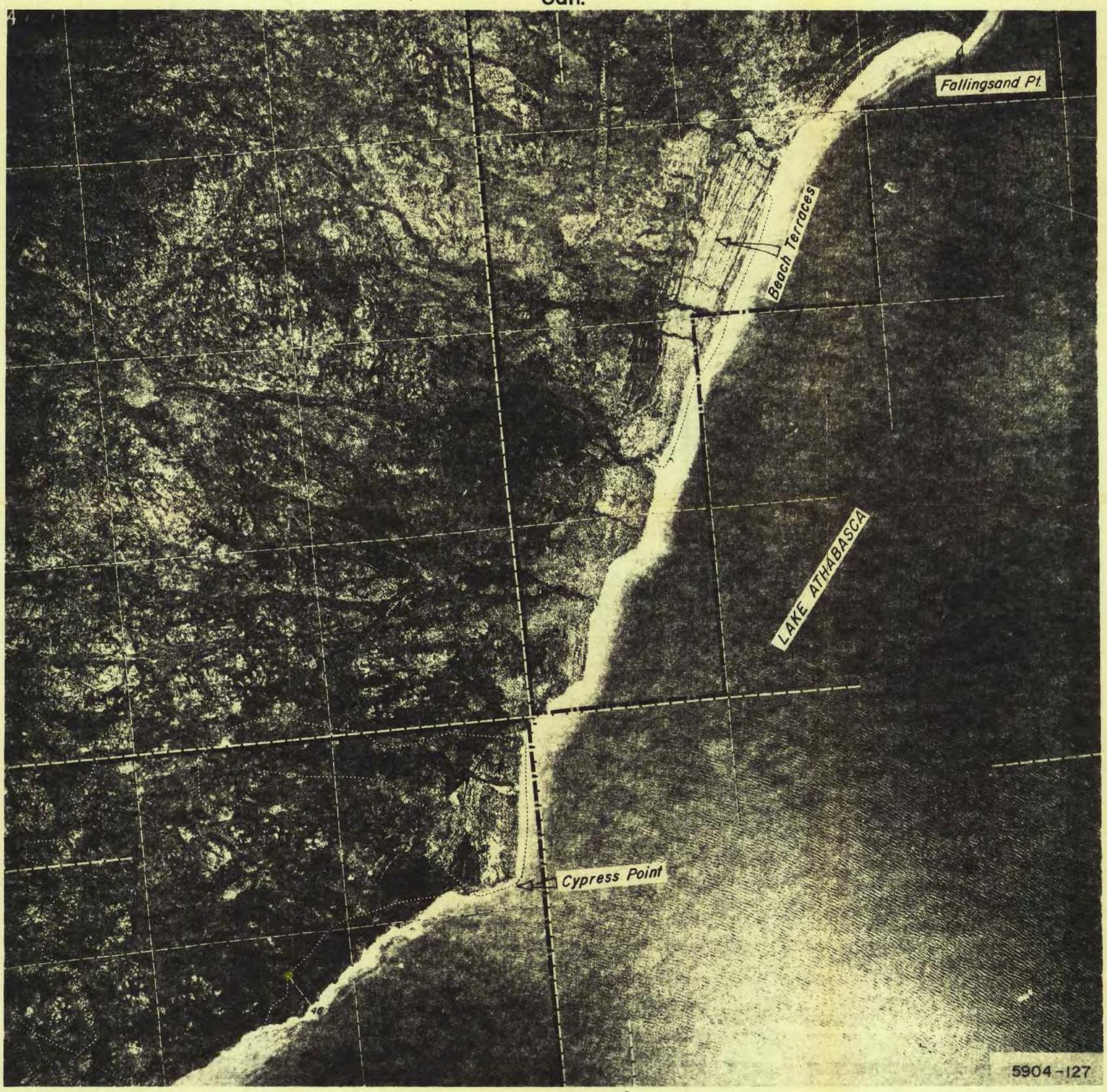
R. 2 | Can. | R. 1 W. 4 M.

T. 118 | T. 118



Can. | Can.

T. 117 | T. 117

R. 2 | Can. | R. 1 W. 4 M.

LAKE ATHABASCA

104-No. 7
1970006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 7 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949 - 1951 PHOTOGRAPHY — 1:40,000 (1" = 3333')

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LAKE ATHABASCA

Northeast Alberta, Canada

104- No. 6
1970006

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO 6 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA DEPT LANDS & FORESTS
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BY: JOHN D. HALE CONSULTING LTD.

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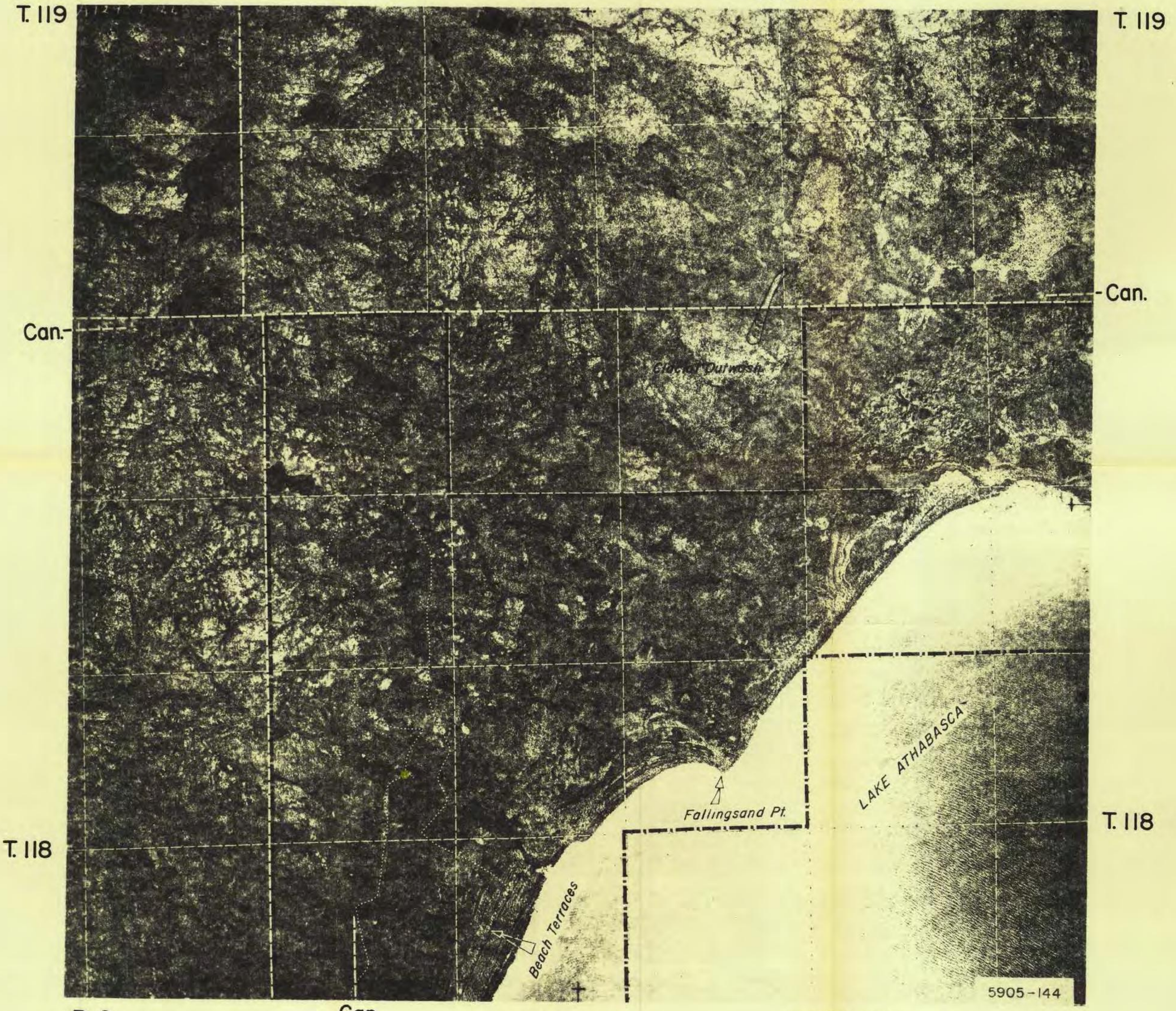

LAKE ATHABASCA

104-No. 8
1970006

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 8 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
1949-1951 PHOTOGRAPHY — 1:40,000 (1" = 3333')

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T. 117

R. 2 W. 4 M.

LAKE ATHABASCA

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO. 5 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT LANDS & FORESTS
1949 - 1951 PHOTOGRAPHY – 1:40,000 (1" = 3333')

BY: JOHN D. HALE CONSULTING LTD.

DATE: NOV. 1970 CALGARY, ALBERTA

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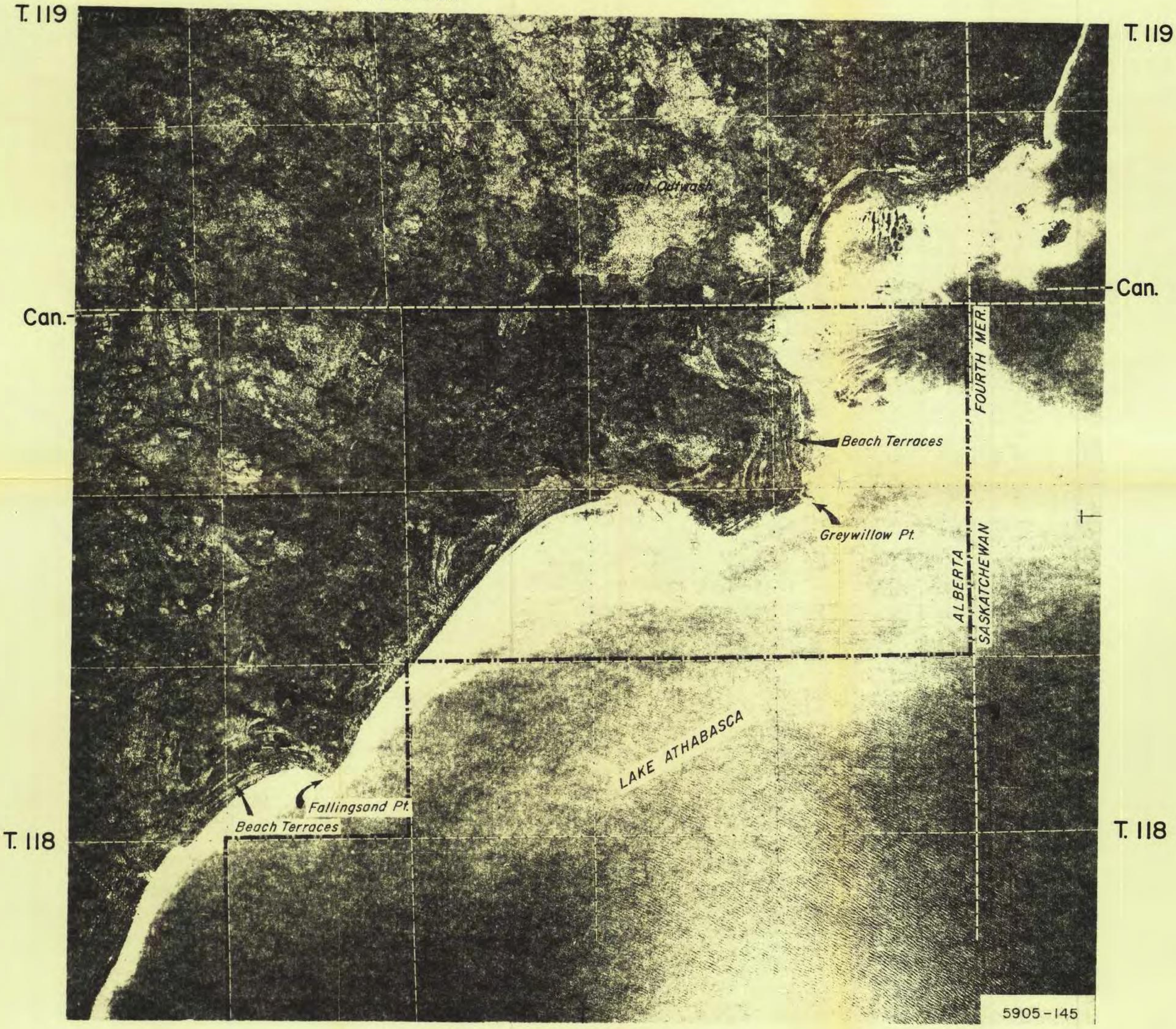
R. 1 W. 4 M.



R. 1 W. 4 M.

LAKE ATHABASCA

Northeast Alberta, Canada

Quartz Mineral Exploration Permit No. 104

NORTH CANADIAN OILS LIMITED

AERIAL PHOTOGRAPH ENLARGEMENT NO 9 OF NINE
SCALE: 1" = 1,667 FEET

FROM ALTA. DEPT. LANDS & FORESTS
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JOHN D. HALE CONSULTING LTD

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Photo No. 1 Photo No. 2

= 2X Enlargement

Q.M.E. No. 104
Lake Athabasca

Aerial Photo Index Map

LAKE ATHABASCA

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GREYWILLOW POINT

FALLING SAND POINT

CYPRESS POINT

FIDLER POINT

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SHOWING ANOMALOUS AIRBORNE
RADIATION AREAS
SURVEYED DURING SUMMER 1969
FOR SURFACE FIELD
HAND-SCINTILLOMETER CHECKING
DURING SUMMER 1970

ANOMALY IN COUNTS PER SECOND
GAMMA RADIATION ABOVE BACKGROUND.

SCALE IN MILES
0 1 2

NORTH CANADIAN OILS LTD.

GAMMA RAY SPECTROMETER SURVEY — CONTOUR INTERVAL 1000

QUARTZ MINERAL PERMIT NO. 104 N.E. ALBERTA

JUNE 1969

PARTY CHIEF G.M. DURRE

APPROVED W.T. COOK P.Geol

ROVING
EXPLORATION SERVICES LTD.

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