SEISMOGRAPH REPORT

on

NORTHWEST TERRITORIES PERMITS

No. 3063 Thru 3073 and No. 2905

CONDUCTED BY

NATIONAL GEOPHYSICAL CO. OF CANADA

for

HUDSON'S BAY OIL AND GAS COMPANY LIMITED

AMERADA PETROLEUM CORPORATION

DEPT. OF NORTHERN AFFAIRS & NATIONAL RESOURCES
CALGARY, ALBERTA.
JUN 23 1964
OIL CONSERVATION ENGINEER
Northwest Territories & Yukon Territory

C O N T E N T S

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INTRODUCTION

Hudson's Bay Oil and Gas Company Limited acting as operator for Northwest Territories Permit No's 3063 thru 3073 and Permit No. 2905, which are jointly owned by Amerada Petroleum Corporation and Hudson's Bay Oil and Gas Company Limited, conducted a geophysical seismograph survey on the above grouped permits during the period from December 6, 1963 to April 3, 1964. The seismograph operations were contracted by National Geophysical Co. of Canada Ltd. The dozing was contracted by Bain Brothers Construction Limited and the catering of camp services was awarded to Fortier Northey & Associates Holdings Ltd.

All equipment, materials and supplies were moved by barge, during the summer months, from our base camp located on the south side of the McKenzie River at 62° 09' N. Latitude 123° 03' W. Longitude to the north side of the McKenzie River where a new base camp had been established at 62° 13' N. Latitude 123° 12' W. Longitude. Additional equipment, materials and supplies needed to replenish that which had been used during the 1962 - 1963 season were moved in from Hay River and Norman Wells. Preparations for the 1963 - 1964 season continued throughout the summer with the bulldozing operations commencing in November and the seismograph crew commencing operations on December 6, 1963. Operations were conducted continuously throughout the winter with the exception of a few days break at Christmas. The dozing of trails was accomplished by three D7 caterpillar bulldozers. The shothole drilling operation employed two air-water combination National drills and one Sedco air-water combination drill. National Geophysical's recording seismograph instruments were used in conjunction with a Techno Magnetic tape recorder. A BH-HH (18-140 C.P.S.) filter was used to record on tape and for the Monitor Record. A CH-EH (26-74 C.P.S.) filter was normally used for playback of the Magnetic Tape.

The field operation employed an average of 26 men with an additional four men headquartered in Ft. Nelson, British Columbia. The operation was also supported by Hudson's Bay Oil and Gas Company's Beaver Aircraft.

STATISTICS

1.	Working Days	100
2.	Setups	861
3.	Basement Traverse	205 miles
4.	Shots	1,848
5.	Dynamite Used	9,280 lbs.
6.	Dynamite per Shot	5.51 lbs.
7.	Holes Drilled	863
8.	Footage Drilled	64,725 feet
9.	Average Hole Depth	75 feet

MAP DISCUSSION

✓EXHIBIT I

This is a small scale map which has outlined thereon the permits covered by this report. The work was confined to that area north and west of the river and more specifically Permits No. 3069 thru 3072.

✓EXHIBIT II

This is a shotpoint location map which has shown thereon the location of our base camp along the MacKenzie River as well as the air landing strips which were constructed by us during the operation.

✓EXHIBIT III

This is a shotpoint location map on which the surface elevations have been tabulated. All surveying was done using a transit and has been tied both vertically and horizontally to the existing Government control in the area. All elevations are referred to sea level.

EXHIBIT IV

This is a contour structure map on a horizon which has been tentatively identified as the Leiorhynchus Zone. All identifications are subjected to error due to lack of subsurface control to which the data can be tied.

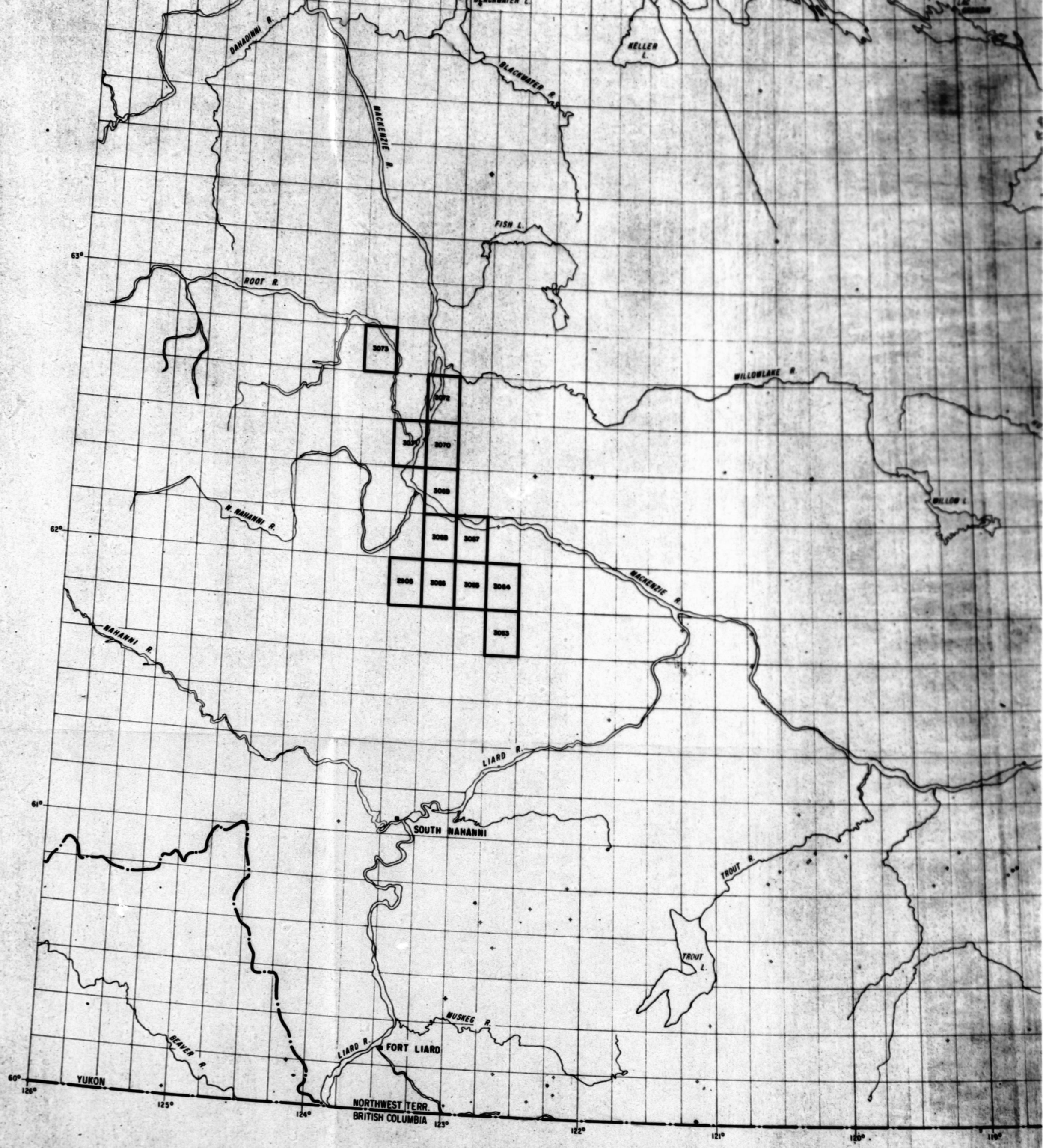
EXHIBIT V

This is a structure contour map which has been tentatively identified as Cambrian and is believed to be near the basement.

HUDSON'S BAY OIL AND GAS COMPANY LIMITED

D. E. Fickinger,
Assistant Chief Geophysicist.

May 7, 1964



38-6-4-4 SPR

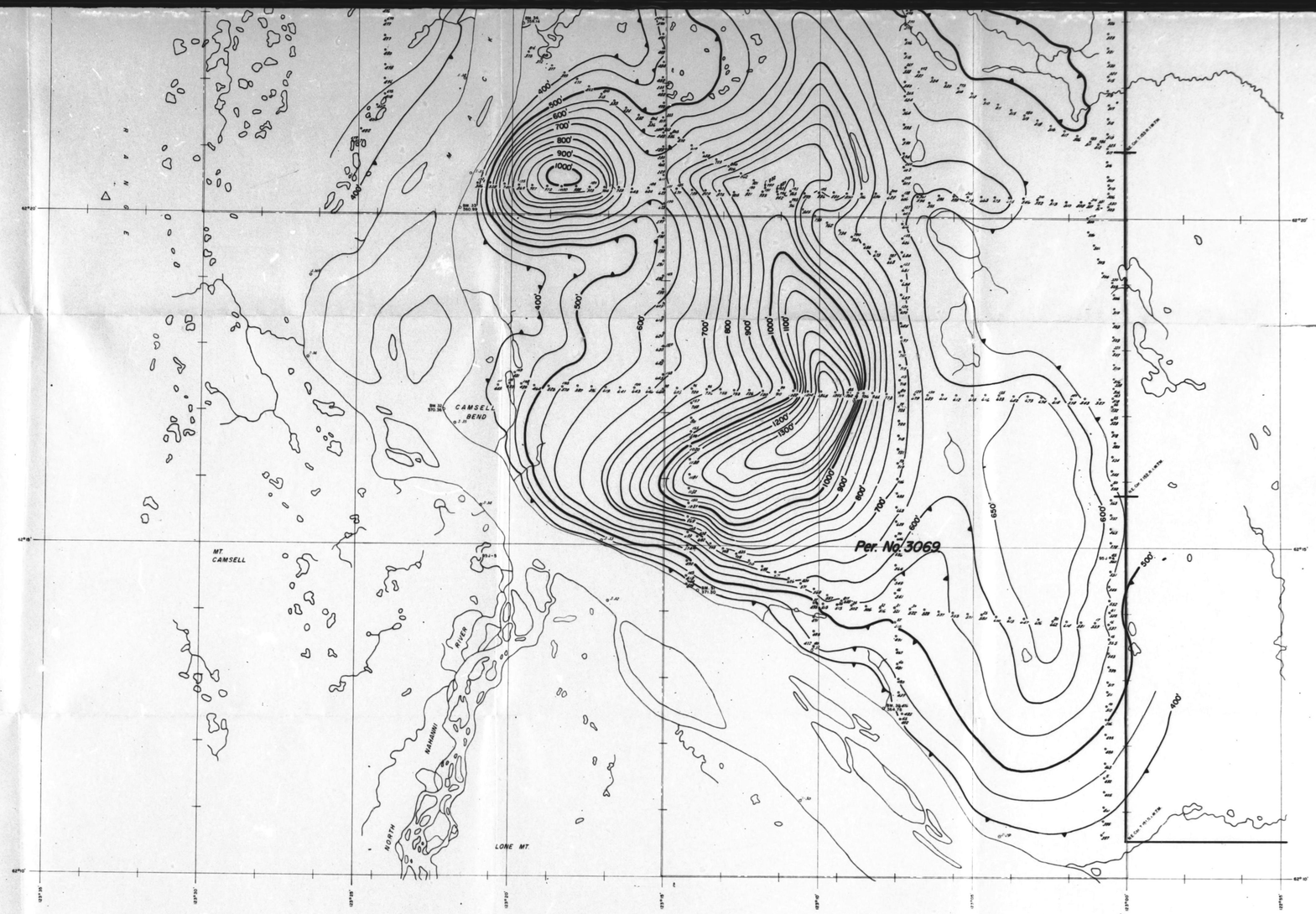
EXHIBIT I

INDEX MAP

Scale: 1 in. = 16 mi.

284

JUN 26 1964



PROJECT HISTORY

PROJECT	PROJECTS INTEGRATED	DATE STARTING	DATE ENDING	SHOTPOINTS	PROFILE OR SYMBOL	CORRELATIONS HORIZON	CORRELATIONS APPROX TIME	CORRELATIONS APPROX DEPTH	PARTY	PERSONNEL PARTY CHIEF	PERSONNEL INTERPRETED BY	EL. REF	VE	VN	REMARKS
BERRY ISLAND		12 8 63	4 3 64	1 – 829					NAT 2	GOODWIN	BURTY	600	8000	2000	

VELOCITY SURVEY ON FILE
WELL LOCATION
SUSPENDED WELL
OIL WELL
GAS WELL
DRY & ABANDONED
CANCELLED LOCATION
UPHOLE SURVEY
SHOT POINT
FLOWING HOLE
NOT SHOT
NOT DRILLED
CORRELATION TIME
QUESTIONABLE CORRELATION TIME
PHANTOM TIME
NO REFLECTIONS ON RECORDS
MIDPOINT TIME
SURFACE FAULT
DEFINITE, RELIABLE
PROBABLE
POSSIBLE
SUSPECTED - CHIEFLY CONTOURING CONVENIENCE
DATUM OF HORIZON CHANGE
ZONE BASE
SCALE

DATA ON THIS MAP HAVE BEEN CORRECTED
- BY NORMAL UPHOLE METHOD
- FOR DRIFT BY CRITICAL DISTANCE METHOD
- FOR DRIFT BY TIME-INTERCEPT METHOD
- CURVED PATH METHOD

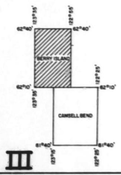


EXHIBIT III

SPR

HUDSON'S BAY OIL & GAS COMPANY SEIS-STRUCTURE MAP
OF SURFACE ELEVATION 38-6-9-5

CONTOUR INTERVAL 50 Feet.

PROJECT BERRY ISLAND
NORTHWEST TERRITORIES CANADA

EL. REF VE VN

CORRELATIONS
HORIZON
APPROX TIME APPROX DEPTH

DIPS
ZONE
ZONE LIMITS

SHOT BY NATIONAL GEOPHYSICAL COMPANY OF CANADA LIMITED, PARTY No. 2. PARTY CHIEF D. W. GOODWIN

COMPUTER A. A. M. & R.D.H. CONTOURED BY D. W. GOODWIN

PROJECT COMPLETION DATE APRIL 3rd, 1964

RE-INTERPRETED BY DATE MAY 1st, 1964

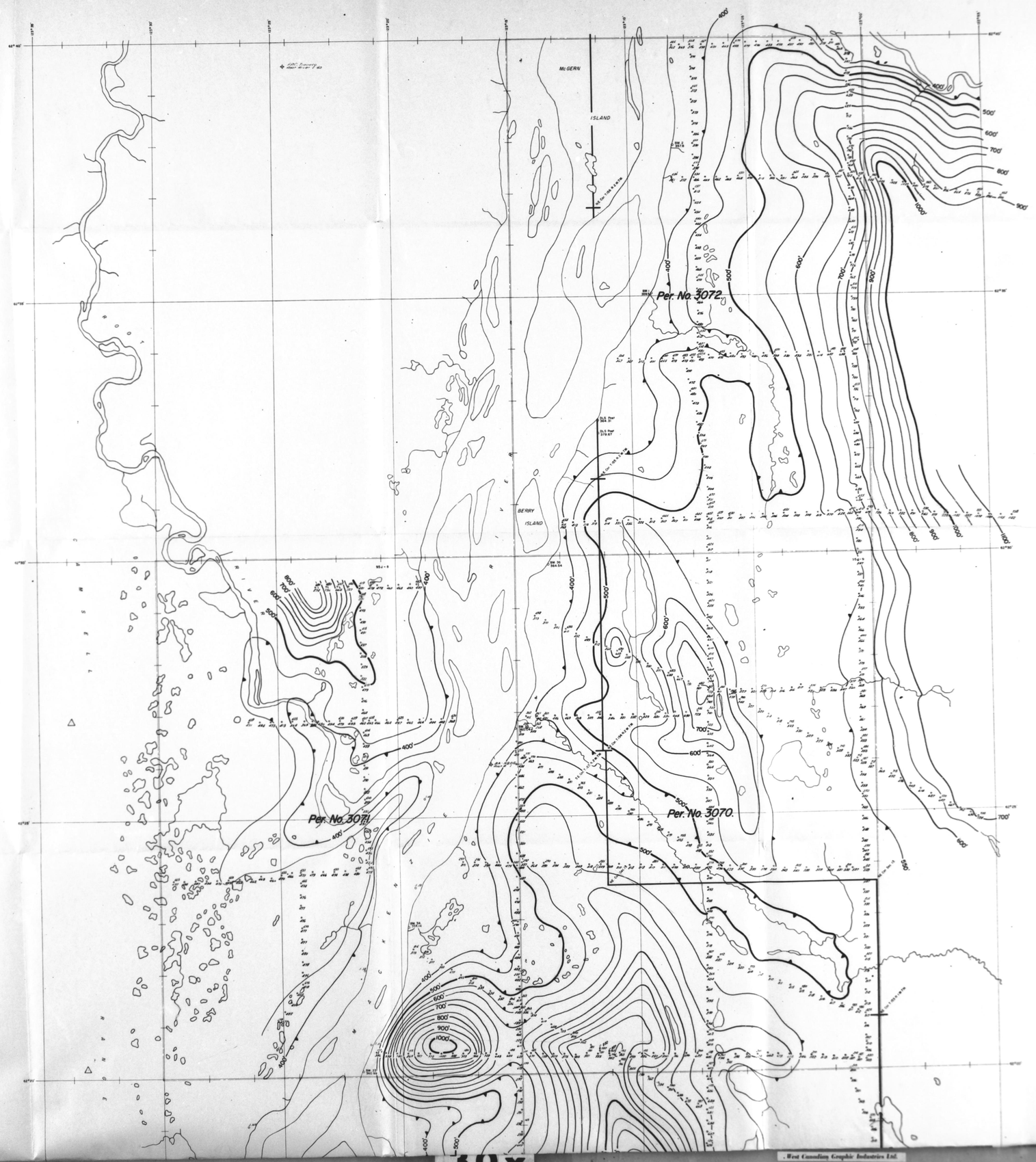
ORIGINAL RECEIVED JUN 26 1964

Well Revision June 28, 1965

2-54

30x
West Canadian Graphic Industries Ltd.

BERRY ISLAND



West Canadian Graphic Industries Ltd.

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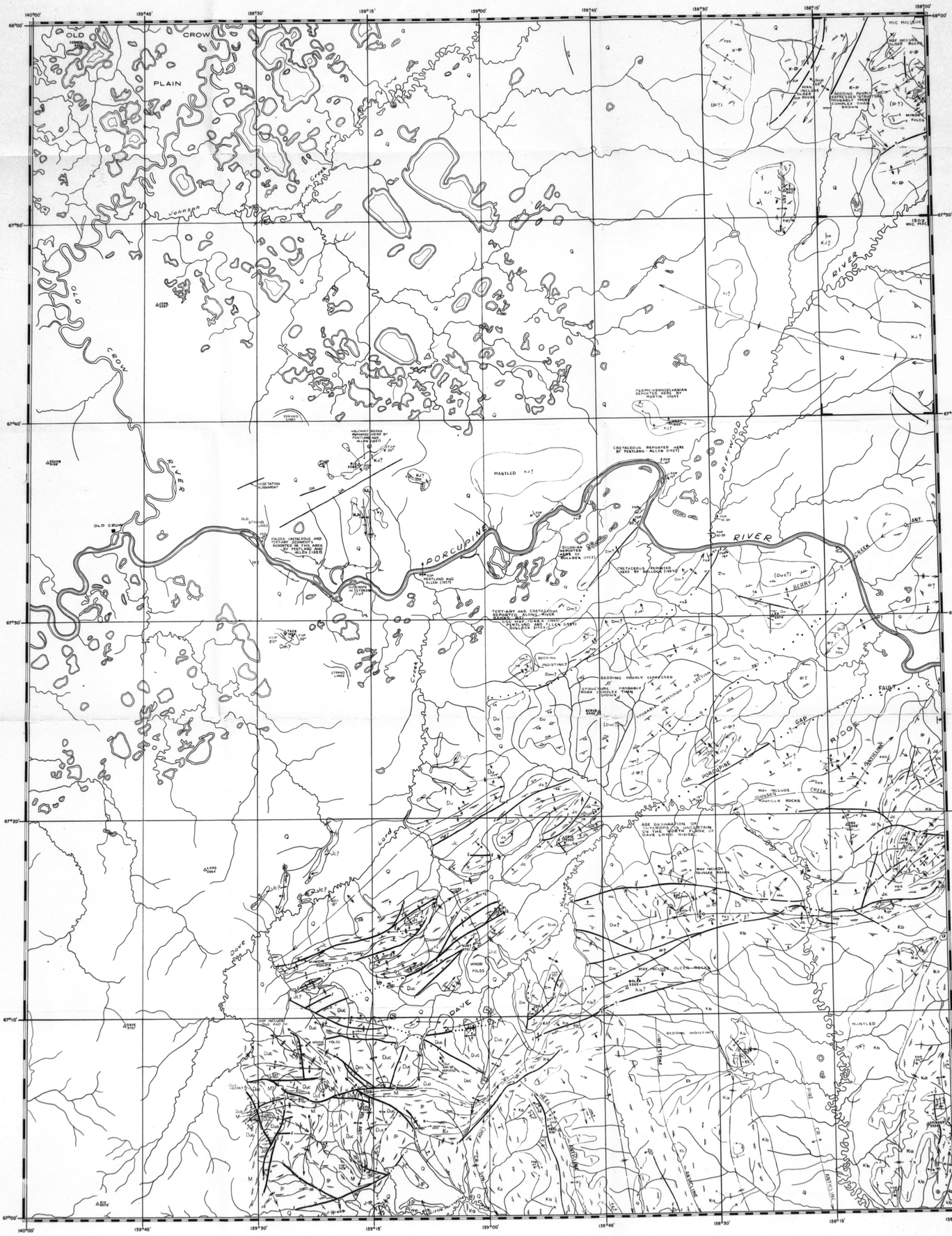
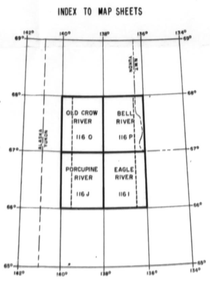


LEGEND

AGE	SYMBOL	LITHOLOGIC DESCRIPTION
QUATERNARY	Q	Recent alluvium and terrace deposits.
CRETACEOUS	Ks	Sandstone, conglomerate and shale.
CRETACEOUS and/or JURASSIC	Kb	Shale with some sandstone.
JURASSIC	Js	Sandstone with some shale.
	Jd	Mainly shale
PERMO-PENNSYLVANIAN	IP	Sandstone, siltstone and shale. Carbonates underlie clastic unit in White Mine area
MISSISSIPPIAN	M	Limestone with some shale
UPPER DEVONIAN	Dus	Mainly shale
	Duc	Conglomerate, sandstone with some shale
MIDDLE DEVONIAN	Dm	Carbonate with some shale.
SILURIAN, ORDOVICIAN and CAMBRIAN	? S-€	Limestone, quartzite and chert

Ks, Kb, Js, Jd → KJ; KJ, IP → K-IP; Duc, Dus → Du

INDEX TO MAP SHEETS



MAGNETIC DECLINATION 36°00' EAST

NOTE: References to authors correspond to those listed in the bibliography of the accompanying report

GEOLOGICAL SYMBOLS

- Bedding appears horizontal on photographs
- Recognizable dip 1° or less
- Dip group 1, 1° to 3°
- Dip group 2, 3° to 10°
- Dip group 3, 10° to 25°
- Dip group 4, 25° to 45°
- Dip group 5, 45° to nearly vertical
- Bedding appears vertical on photographs
- Overturned bedding
- General dip of beds having subordinate folds
- Dip and strike. Amount of dip cannot be estimated on photographs
- Dip component
- Field observed dip or component
- Field observed published dip
- Photo estimated dip
- Possible dip slope
- Strike line of prominent ridge or bedding. Direction of dip cannot be determined on photographs.
- Fracture or joint
- Distinctive alignment, possible structural significance
- Fault, dotted where intended through Quaternary deposits
- Fault, position indefinite
- Fault, inferred
- Thrust fault, triangles on thrust sheet
- Trace of bedding in stream cut appears horizontal. May represent flat-lying beds or strike
- Anticline. Arrow denotes plunge. Diamond denotes approximate position of apex.
- Syncline. Arrow (horizontal dip). Dread end (rock) bars denote approximate position of high point.
- Anticline and syncline, position indefinite
- Anticline and syncline, inferred
- Anticline and syncline overturned. Arrows denote direction of dip of limbs and are on side of normal dip
- Axis of anticline appears to coincide with fault trace
- Axis of syncline appears to coincide with fault trace
- Structural terrace
- Monocline
- Apparent unconformable contact
- Contact, dashed where indefinite
- Contact, inferred
- Key bed
- Stratigraphic break
- Outcrop area
- Possible outcrop area
- Prominent scarp or steep slope
- Minor scarp or slope
- Glacial striation indicating direction of ice movement

GEOMORPHIC SYMBOLS

- Linear stream segment interpreted as strike controlled
- Linear or curvilinear stream segment interpreted as structurally controlled
- Strike and dip interpreted from geomorphic evidence
- Anticline and syncline based on geomorphic evidence. Dashed where position indefinite. Arrow indicates direction of plunge.

CULTURAL AND GEOGRAPHICAL SYMBOLS

- Provincial highway
- Improved road
- Unimproved road, main access
- Minor road or trail
- Mine or quarry
- Airstrip
- Triangulation station
- Bench mark
- Town, population 1-250
- Town, population 251-1000
- Town, population over 1000
- Building
- Group of buildings
- Fence
- Streams
- Braided stream
- Lake or pond
- Intermittent lake or pond
- Depression or sink hole
- Swamp or marsh area (muskeg)
- Well location or drilling well
- Abandoned location
- Oil well
- Abandoned oil well
- Gas well
- Oil and gas well
- Suspended location
- Dry and abandoned test
- Permit boundary and number

AREAL GEOLOGY AND STRUCTURAL INTERPRETATION MAP OF THE PORCUPINE PLAIN AREA YUKON TERRITORY

-Prepared by-
V.ZAY SMITH ASSOCIATES LTD.
CALGARY, ALBERTA

SCALE
One inch to 1 mile

38-1-3-4
-Prepared for-
CONSOLIDATED MIC MAC OILS LTD.
MAY 1960

MAY 04 1960

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Rest Canadian Graphic Industries Ltd.