REPORT

ON

GEOPHYSICAL EXPLORATION

OF THE

NORTHWEST TERRITORIES OIL AND GAS PERMIT NO'S. 1054 AND 1055

BY

SOCONY MOBIL OIL OF CANADA, LTD.

DISTRICT OFFICE

DAWSON CREEK, BRITISH COLUMBIA

REPORT PERIOD DECEMBER 10, 1961 TO APRIL 30, 1962

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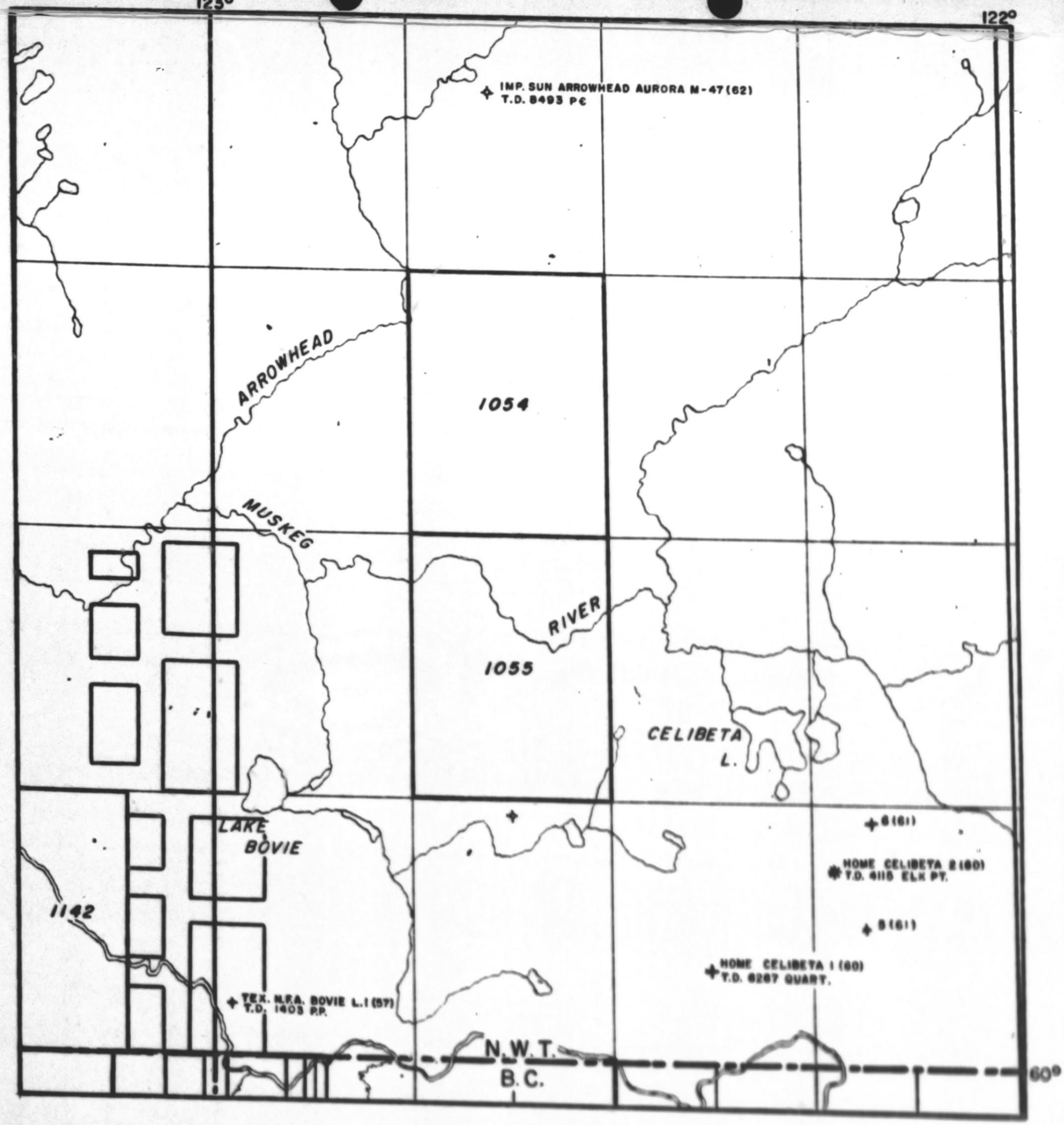

LOCATION PLAT

SHOWING

N.W.T PERMITS 1054 & 1055

SCALE: 1" = 6 Miles

DATE: AUG., 1962

PLATE No. 1

REPORT ON GEOPHYSICAL EXPLORATION

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INTRODUCTION

Oil and Gas Permit No's. 1054 and 1055 are located between 122° 30' W. and 122° 45' W. Long, and 60° 10' N. and 60° 30' N. Lat. in the district of MacKenzie in the Northwest Territories. Permit No's. 1054 and 1055 were issued to Mobil Oil of Canada, Ltd., on December 10, 1956.

During the 1962 winter season, Socony Mobil Oil of Canada, Ltd. conducted a continuous reflection seismograph survey over Permit No's. 1054 and 1055. Exploration Consultants Incorporated, of Calgary, Alberta, were contracted for the survey. The crew commenced operation on January 1, 1962 and terminated on March 23, 1962. One hundred and eighty-five miles of continuous reflection profiles were obtained during the survey.

DISCUSSION OF AREA AND FIELD OPERATIONS

Access to the area is via the Simpson Trail, a winter road from Fort Nelson, British Columbia to Fort Simpson in the Northwest Territories. The permits can be reached by following this winter trail north for approximately 100 miles and then following bulldozed seismic lines approximately forty miles west.

The major portion of the permits is covered with muskeg underlain by clay and boulders. Immediately north of the Muskeg River and on the

west side of both permits, heavy stands of poplar and evergreens were encountered. The area is generally flat with a slight rise in elevation to the north. The Muskeg River runs west through the northern half of Permit 1055 and has cut a deep gorge across the area. Difficulty was encountered when moving equipment across this river.

The field crew and office staff operated from a trailer camp. Supplies were obtained in Fort Nelson, British Columbia.

Truck mounted equipment for surveying, shooting and recording was used by Exploration Consultants Incorporated. Two truck mounted Mayhew 1000 drills with water trucks were used for shot hole drilling. These drills were sub-contracted by Exploration Consultants, one each from Ashton Drilling and Shibley Drilling.

Two D-7 caterpillar tractors equipped with dozer blades were employed for snow plowing and line cutting. The two D-7's were contracted from Arctic Construction of Fort Nelson, British Columbia.

All surveyed elevations and locations were referred to Monument 53 on the Northwest Territories-British Columbia border. A transit and alidade were utilized for surveying. Aerial photographs of the area were obtained in March, 1962 and all locations on the final maps were adjusted to the photographs.

During the survey, 1320 feet and 2640 feet split spread records were recorded on modified 24 channel Century instruments. These instruments were used in conjunction with an SIE-MR4 magnetic tape system. Multiple geophones of nine per trace were also

used. On shot points where the 1320 foot spread length was used an additional 2640 foot end-on record was recorded for near surface velocity information.

ENCLOSURES

Seven maps are submitted with this report to support the work completed during the 1962 winter season. The 1962 data is incorporated with data from previous survey on the enclosed maps.

1. Map showing area of survey, trails, access road, air strips and campsites.
2. Map showing drillers log and location of each shot point.
3. Topography.
4. "B" Horizon - Approximate Top of Mississippian.
5. "C" Horizon - Approximate Top of Second Limestone.
6. "B to C" Isopach - Approximate Top of Mississippian to Approximate Top of Second Limestone.
7. Map showing border of Permit No's. 1054 and 1055.

RESULTS

Record quality varied from good to very poor over the area surveyed. It is believed that the poor record quality is associated with muskeg areas. The seismic survey was tied to three wells in the area, Home C.S.P. Celibeta No. 1, Pan Am Home C.S.P. Celibeta No. 7 and to the north to Imperial Sun Aurora M-47.

The structure maps in time at both the Mississippian and Second Limestone levels indicates regional southwest dip across Permit No. 1054 and very steep northwest dip over the south half of Permit No. 1055. One major fault which strikes northwest-southeast across the southwest corner of Permit No. 1054 and the northeast

corner of Permit No. 1055 has been mapped on the Second Limestone formation. This fault is not visible on the seismic records at Mississippian level.

The "B-C" Isopach (Approximate Mississippian to approximate Second Limestone) indicates only minor thick and thin areas.

J. A. MacDonald
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