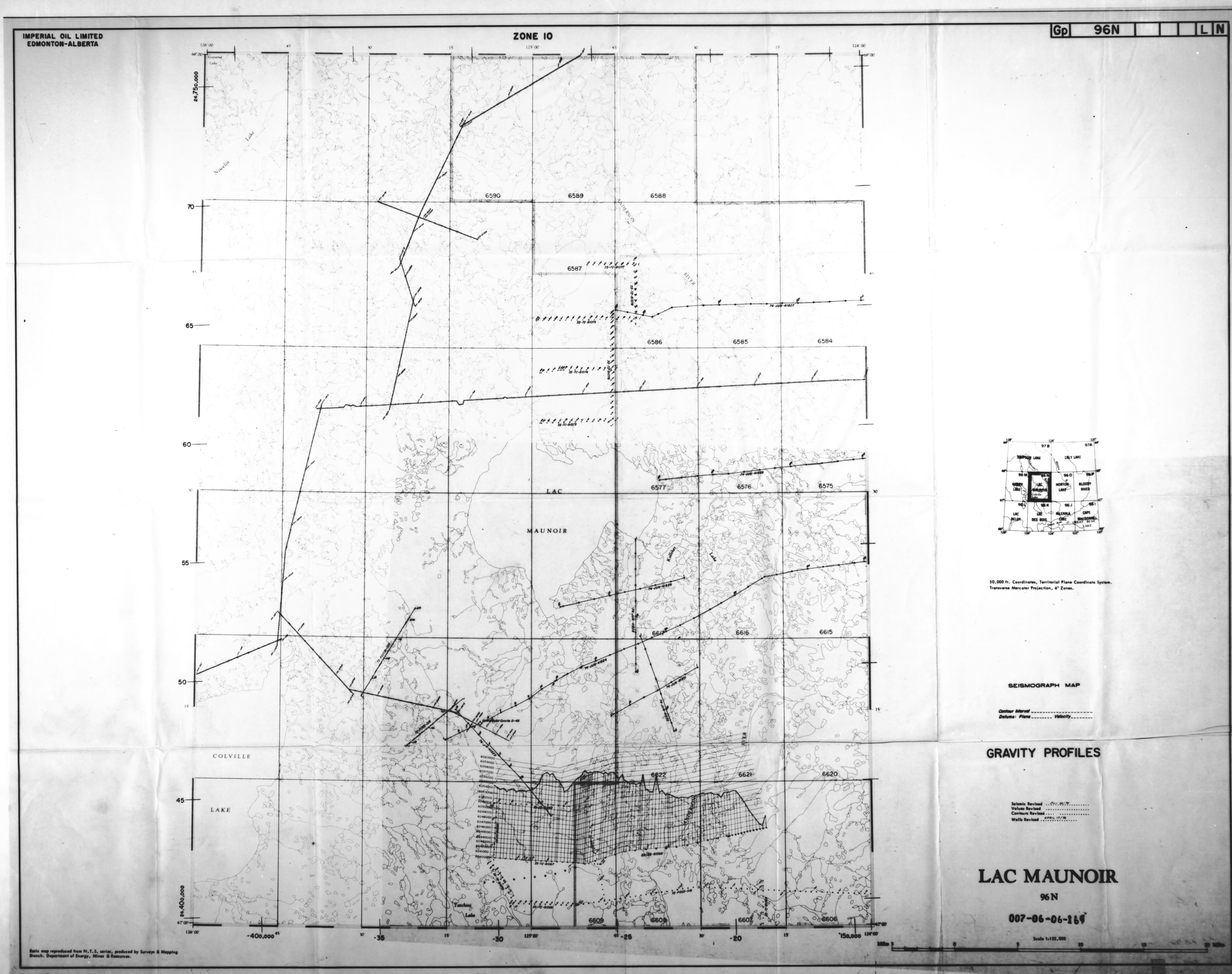
IMPERIAL OIL LIMITED
EDMONTON-ALBERTA
ZONE 10
Gp 96N L N
6590 6589 6588
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6577 6576 6575
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6609 6608 6607 6606
-400,000 -35 -30 -25 -20 150,000
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50,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6° Zones.
SEISMOGRAPH MAP
GRAVITY PROFILES
LAC MAUNOIR
96N
007-06-06-169

IMPERIAL OIL LIMITED
EDMONTON-ALBERTA

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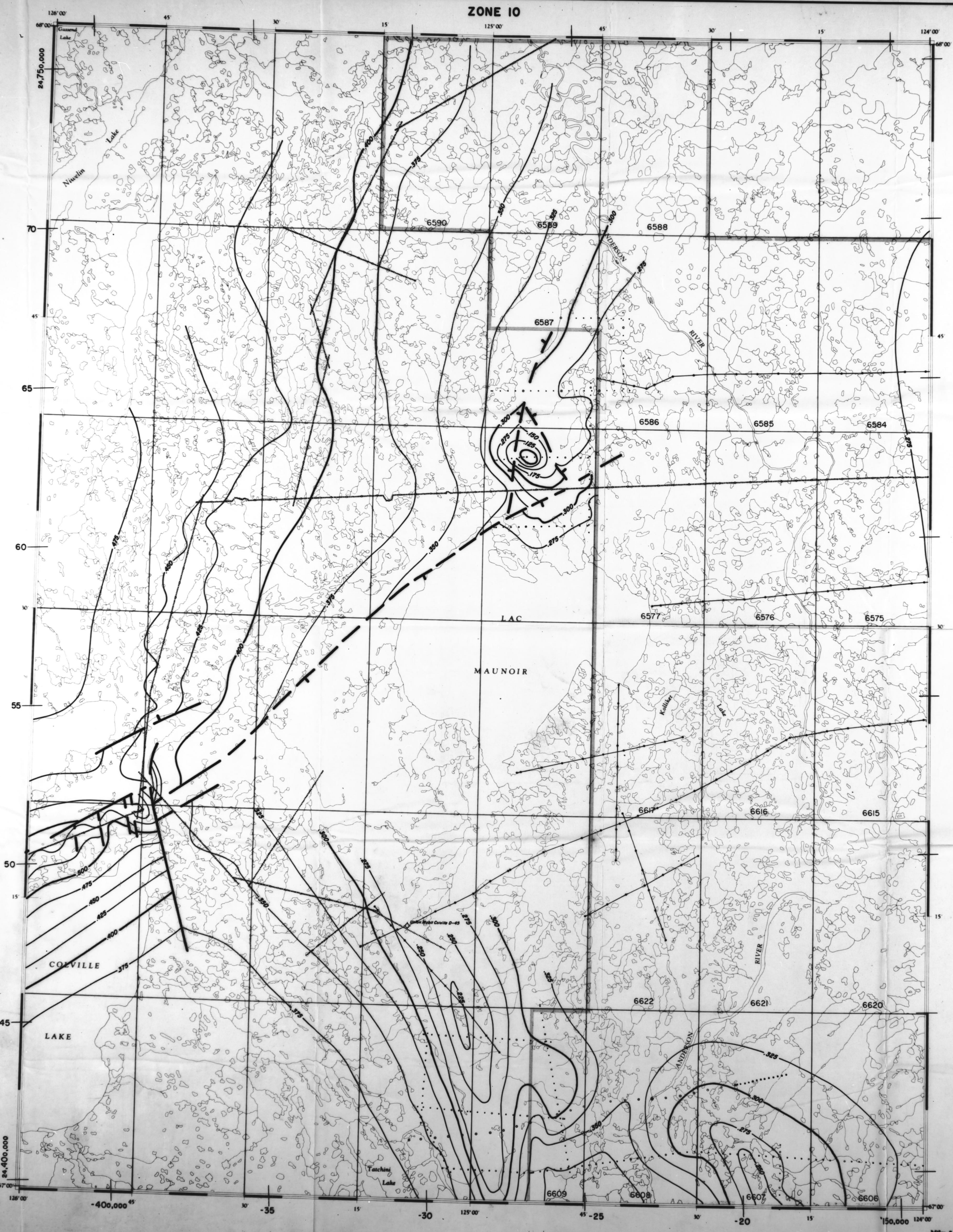

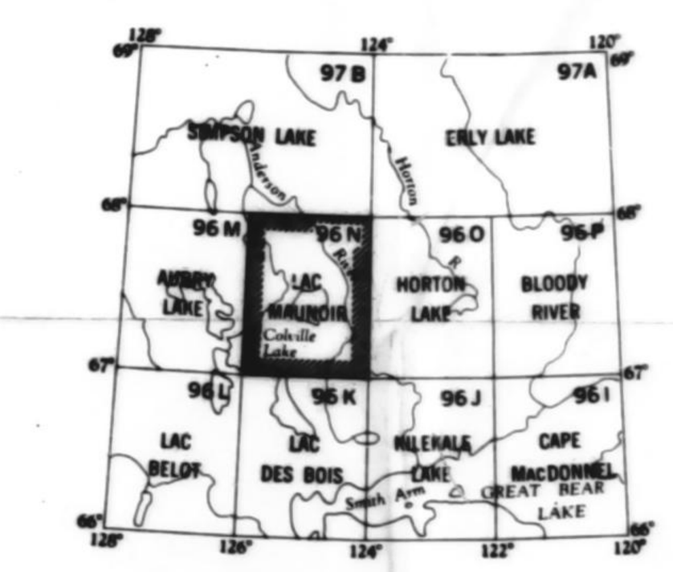

50,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6° Zones.

PROJECT No.
7-6-6-72-1

PROJECT No.
7-6-6-72-14

SEISMOGRAPH MAP
TIME STRUCTURE
CAMBRIAN

Contour Interval .025 SEC.
Datums: Plane 1000' *Velocity* 18,000'/sec.

Seismic Revised July 22/74
Values Revised
Contours Revised JUNE 19, 1972
Wells Revised APRIL 17/74

LAC MAUNOIR

96N

007-06-06-169

Scale 1:125,000

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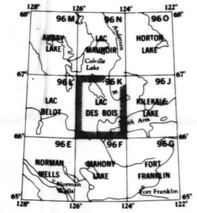
IMPERIAL OIL LIMITED
EDMONTON-ALBERTA

ZONE 10

Gp 96K L N

GRAVITY PROFILES

007-06-06-169



50,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6° Zones.

SEISMOGRAPH MAP

Contour Interval _____
Datums: Plane _____ Velocity _____

Seismic Revised Feb. 1979
Values Revised _____
Contours Revised _____
Wells Revised April 17/79

LAC DES BOIS

96K

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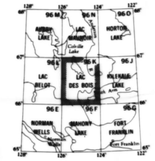
Scale 1:125,000

Miles 5 0 5 10 15 20 Miles

IMPERIAL OIL LIMITED
EDMONTON-ALBERTA

ZONE 10



50,000 ft. Coordinates, Territorial Plane Coordinate System.
Transverse Mercator Projection, 6° Zones.

PROJECT No.
7-6-6-72-1

PROJECT No.
7-6-6-72-14

SEISMOGRAPH MAP
TIME STRUCTURE
CAMBRIAN

Contour Interval _____
Datum: Plane _____ Velocity _____

Seismic Revised _____
Values Revised _____
Contours Revised _____
Wells Revised _____

LAC DES BOIS
96K

Scale 1:125,000

Miles 5 0 5 10 15 20 Miles

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7-6-6-169 Reflection Seismic Program

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Great Bear - Colville Lake

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FEB. 1923

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Sections

Report — Rapport

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Great Bear - Colville Lakes Area
Reflection Seismic Program
November 1972 to February 1973
Project No. 7-6-6-72-14

By: D. Jardine

January 1975

Imperial Oil Ltd.

Western Exploration District

Great Bear - Colville Lakes Area

Reflection Seismic Program

November 1972 to February 1973

Operator: Imperial Oil Ltd.

Contractor: Western Geophysical Party #35

Permits: Groups 932 and 935

Project No.: 7-6-6-72-14

by

D. Jardine

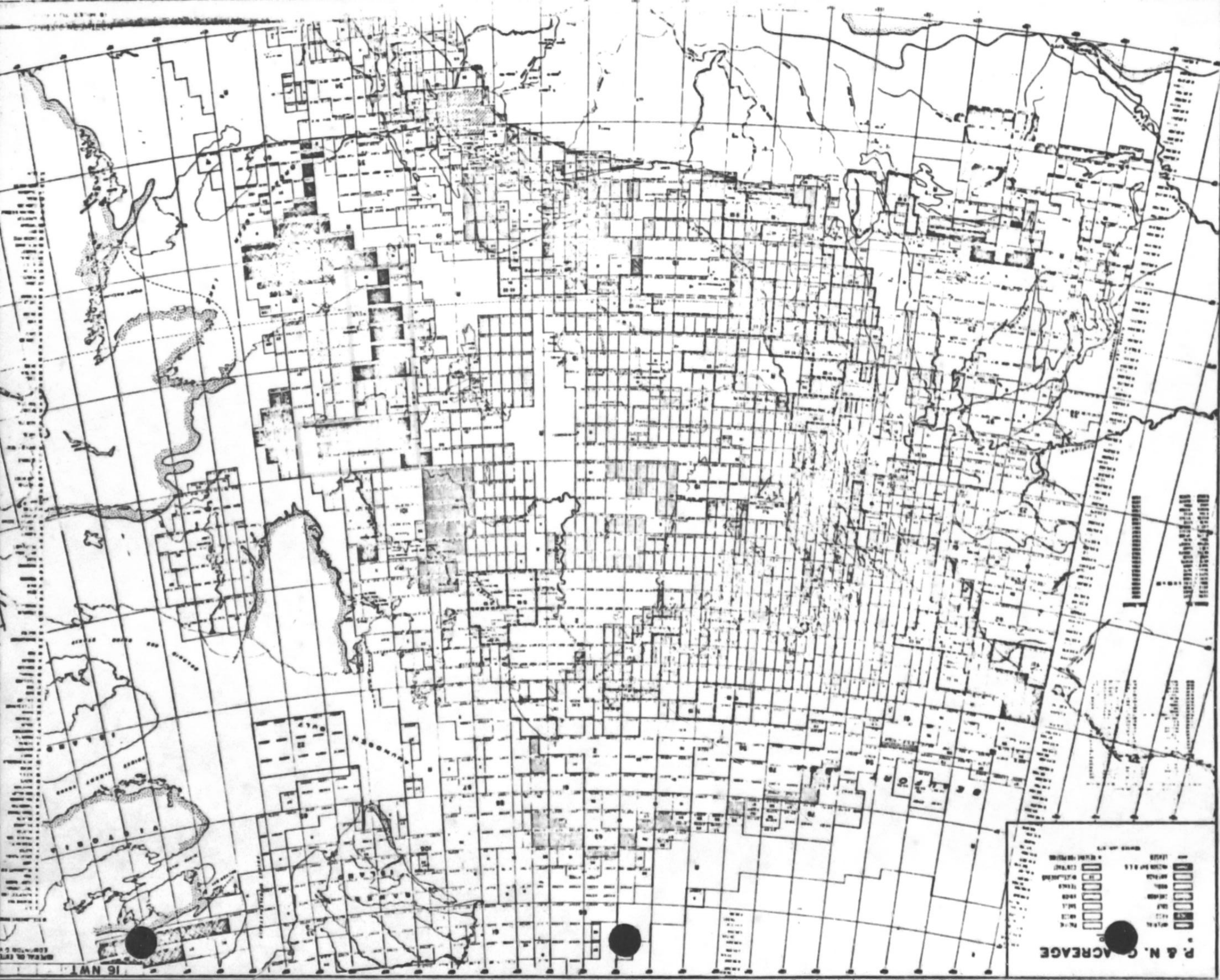
Manager, Western Exploration District

January 1975

Table of Contents

Introduction

This is a report on reflection seismograph operations conducted by Western Geophysical party #35 on behalf of Imperial Oil Limited in the Great Bear-Colville Lakes Area N.W.T. from November 1972 to February 1973.


P. & N. G. ACREAGE
16 NW1

Statistical Data

Dates: The crew moved from Great Bear to Lac des Bois on November 21 and 22nd. During this move the recording unit was damaged causing a delay in the program to December 1. The crew was shut down from December 21st to January 13th. Shooting recommenced on January 14th, and continued until February 4th with 3 down days for camp moves. The final camp move out was completed and the crew released from contract on February 8th.

Production: A total of 79 miles of line were shot. There were 1328 shot holes drilled and 1350 profiles recorded.

Equipment: The recording unit was a DFSIII digital unit using binary gains amplifiers and wheel mounted; shooting truck, reel truck, 5 shot drilling rigs, 2 water trucks, 2 bulldozers. The crew was supplied by charter air service.

Personnel: The crew consisted of a Party Manager, Operator and Assistant, Shooter and Assistant, two surveyors, two rodmen, four geophysical helpers, five drillers, five drill helpers, two water truck drivers, four dozer operators, cook, cook's helper and camp attendant.

Surveying: Horizontal angles were measured to + or -20 seconds with a Wilde T-16 theodolite. Horizontal and vertical control was based on the previous seasons seismic surveys.

Conditions: Weather conditions for the region were typical with temperatures ranging from 0°F to -60°F. There were some windy days but this did not seriously hamper production. Slow drilling was encountered on the surface ridges. This caused only minor production delays.

Field Procedures

For line 81894 a 600% CDP method of shooting was employed using single shot holes at each shot point. The spread length was 1320' ahead of and behind the shot. The shot hole spacing was 220'. This was cut back to 300% CDP with a 1265' spread length for the remaining lines. In this case the shot hole spacing was 440'. The geophone station interval was 110' with coverage of 9 phones over 110' on lines 81394 and 81395. On the remaining lines the station interval was kept at 110' but the coverage increased to 18 phones over 220'. Charge size varied from 10 lb. to 20 lb. of "Geogel" with the average of 15 lb. The average hole depth was 40'.

Data Processing

All of the seismograms were corrected to a datum of +1000' ASL using a datum velocity of 18,000'/s. Weathering corrections were applied where the base of the shot did not penetrate the weathering layer.

The data were played back digitally with 6 and 3 fold stacked sections being produced on variable density film. The data were all filtered during processing to remove interfering events such as noise and ground roll. Multiple energy was not a problem but a short deconvolution operator was used to whiten the frequency spectrum.

Results and Interpretation

The quality of the seismograms, obtained was fair to poor in the south part of the program and fair to good over the remainder. The only consistent reflection was from the Cambrian top. Fairly continuous reflections from both the Palaeozoic carbonate top and the Proterozoic Unconformity were obtained. These showed a very similar form to the

to the Cambrian top which was mapped.

The program was designed to define a drilling location on the East Maunoir ridge anomaly, mapped from the previous years shooting. No major changes in the shape of the Palaeozoic anomaly or of the onlap pattern of the Cretaceous beds were found. (See report on project no. 7-6-6-72-1.)

D. Jardine
Manager, Western Exploration District

JET:gs