

019-06-06-048

WESTERN DECALTA PETROLEUM LIMITED

Report on a Seismic Survey

of the

TREE RIVER AREA

N.W.T. PERMITS:

3646, 3650, 3652, 3653, 3654 & 3746



OPERATOR: Western Decalta Petroleum Limited

CONTRACTOR: Globe Universal Sciences of Canada Ltd.

D.I.A.N.D. PROJECT NUMBER: 19-6-6-73-1

Submitted by

[Signature]

Date

Oct 2/73

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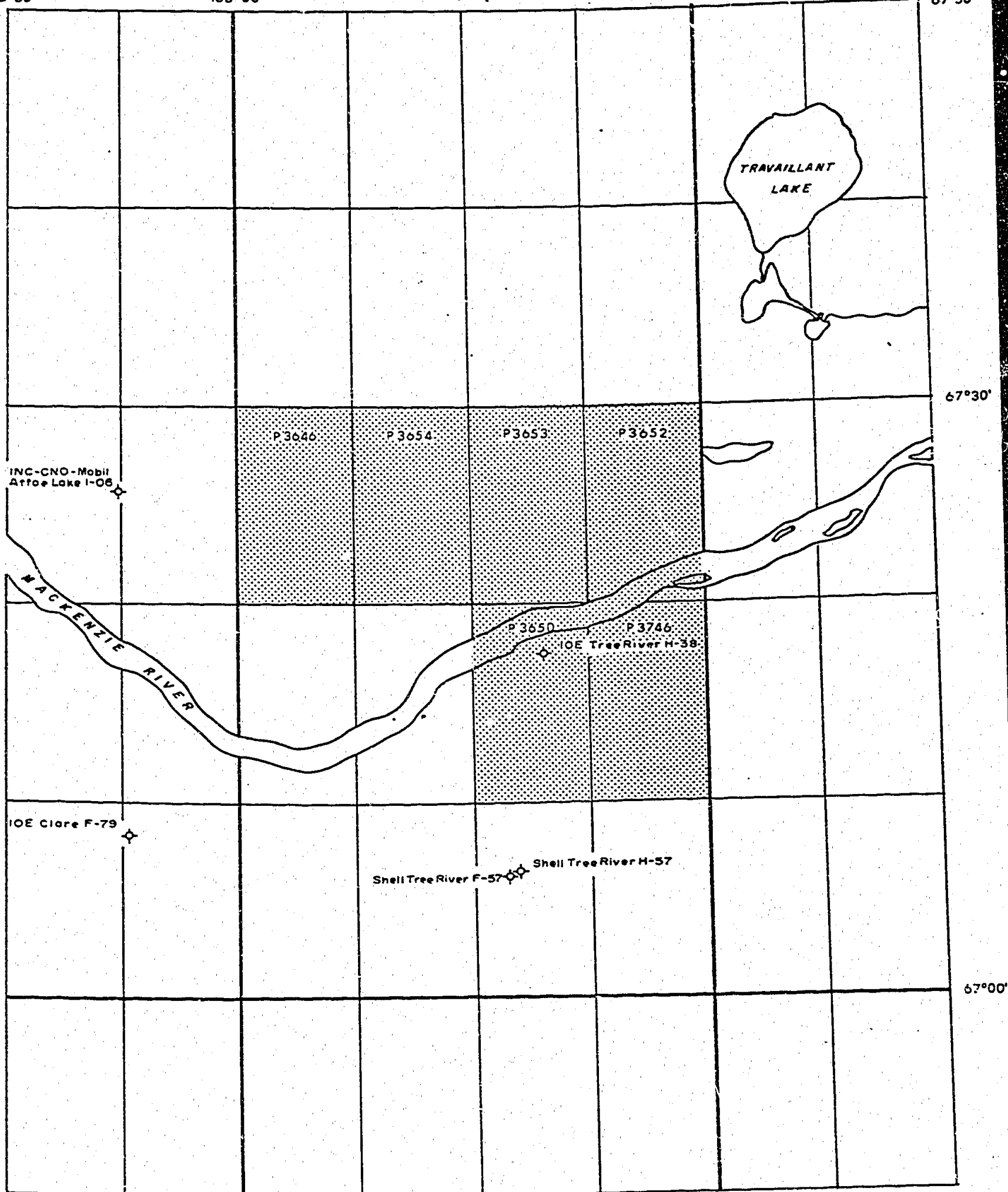
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Middle Devonian Hume	
Formation 106-N-NE	

133°30'

133°00'

132°30'

132°00'

131°30'
67°50'

INTRODUCTION

This is a report on field statistics and field operations for a conventional dynamite reflection seismograph survey employing a six fold common depth point technique in the Tree River area, N. W. T., for Western Decalta Petroleum Ltd.

Operations were under the guidance of Mr. Len Motiuk of Western Decalta.

The survey was conducted by Globe Universal Sciences Canada Ltd. field party 4 during the period March 6 - April 16/73.

LOCATION OF PROJECT

The area is located on both sides of the Mackenzie River in the vicinity of Tree River.

The area surveyed is bounded by $67^{\circ}10'$ - $67^{\circ}31'$ N by $132^{\circ}00'$ - $133^{\circ}00'$ W.

TOPOGRAPHY AND FLORA

The terrain in the area is two fold in type. The portion adjacent the Mackenzie River is of a bench land in nature with random lakes and sloughs prevalent. Here elevation changes are of a minimum. The valley floor from the north shore to the prominent hills covers approximately 4 to 5 miles in width. There is an abrupt escarpment running NE/SW at this point more or less paralleling the river and is referred to as "Pointed Hill". After going up this ridge the elevations change 400' to 600' higher and the surface is more undulating.

Tree cover is mostly spruce and relatively heavy at lower elevations and near drainage features.

RECORD QUALITY

Records were of generally good quality with exception of lines 8 and 6, close to and paralleling the Mackenzie River. Numerous sloughs and lakes proved to be a definite deterrent to

Record Quality Cont...

section quality, through loss of symmetrical stack due to no holes. Additional shots were taken on either side of the no holes to provide compensating coverage and retaining the effective 600%. However, local near surface conditions due to geophone plants on ice and lack of frost in and around lakes had a very diminishing effect on record quality.

After shooting the first line (6), more effort was taken to change lines to avoid water as much as possible. Some ground roll was prevalent in most shots, however, filtering seemingly has taken care of it.

Ice breaks were of a minimum in this area. The zone of interest being .4 to 1.0, charge size was critical and with advance preloading occasionally the 10 lbs. was a little heavy. Wherever possible to pre determine energy effectiveness through terrain and drilling, the charge was decreased to 5 lbs.

FIELD PROCEDURES

Recording equipment employed during the survey consisted of a 48 channel Globe HDDR^B 4000 amplifier and tape system with a 96 channel input panel.

Six hundred percent coverage was obtained using a 2640-0-2640 split spread (roll in-roll out on line ends) 110' station intervals were used with shot point spacing of 440'. Shot points were located common with geophone stations.

Recording was done on out - 100 filter with a fixed gain of 30db and a field filtered playback (25-50) produced with AGC on approximately 66db.

Access into the area was gained by way of overland travel south from Inuvik on the old CNT poleline (Pan Cana Road) to a point 10 miles SE of Travaillant Lake and then south west into the program area on old lines. This trip took approximately 60 hours.

The weather throughout most of the survey was quite favorable. Some problems relative to thawing conditions were encountered during the last week of the survey.

DRILLING CONDITIONS

Drilling was done with 4 conventional air drills and one top drive. Drilling in general was only fair. Changeable conditions throughout the whole area made placement of the top drive difficult. Bit consumption on all types of drills was very heavy. The majority of bits used were of the inserted type.

Single 50' holes were drilled throughout and preloading of 10 or 5 lb. charges was done by the drill crews. Typical strata encountered included: 0 - 20 clay, rocks, ice; 20 - 50 clay, rocks, sand, gravel or shale.

DOZING CONDITIONS

Dozing was done with 2 - D7E, 1 - D7F, 1 - D4 caterpillar tractors supplied by Caribou Construction. They had their own self contained camp complex plus 3 - 3000 gallon fuel sloop and a survival unit.

Dozers were used to doze new lines, fuel hauling, camp moving, snowplowing, making of several airstrips and towing equipment on hills. All fuels had to be flown in by DC-3 from Inuvik.

SURVEYING

Field surveying was done with a Wilde T-16 Theodolite to carry both horizontal and vertical control. Shot point and spread distances were measured chainage and horizontal distances were checked with stadia. Vertical control was established from the I.O.E. Well, Tree River H-38 and tied to other local wells in the area (Shell H-57, F-57).

Horizontal control was carried from the I.O.E. Well also, and tied to the Shell Wells as well as topographical features throughout the program area.

Latitude and departure determination was done on the area. Sun shots were also taken for verification of horizontal control.

GENERAL INFORMATION

The basic recording crew consisted of 9 vehicles, 1 - Nodwell Recorder, 3 - Bombardier Line units, 1- Bombardier Shooting unit, 2 - Survey Bombardiers, 1 - Supply Bombardier. 1 - Party Manager Bombardier. All were equipped with field frequency radios.

Personnel for the basic crew consisted of 18 men.

A Crown Caterers self propelled foldout camp was used, and supplemented by 2 additional sleeper trailers on sleighs. As such there was accommodation for 44 men.

Two diesel light plants, workshops and storage units were also a part of the camp complex.

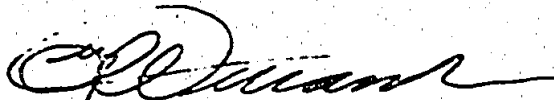
Catering was done by Crown's staff.

No flowing holes were encountered and only minor gas occurrences observed. Line cleanup was done by dozers while cutting line through piling trees onto the lines and walking them down into the snow and tundra.

Upon completion all equipment was moved to Shell Tree River Staging Area on the south bank of the Mackenzie River for demobilization and stacking for further local area use or trans-shipment by barge elsewhere in the summer.

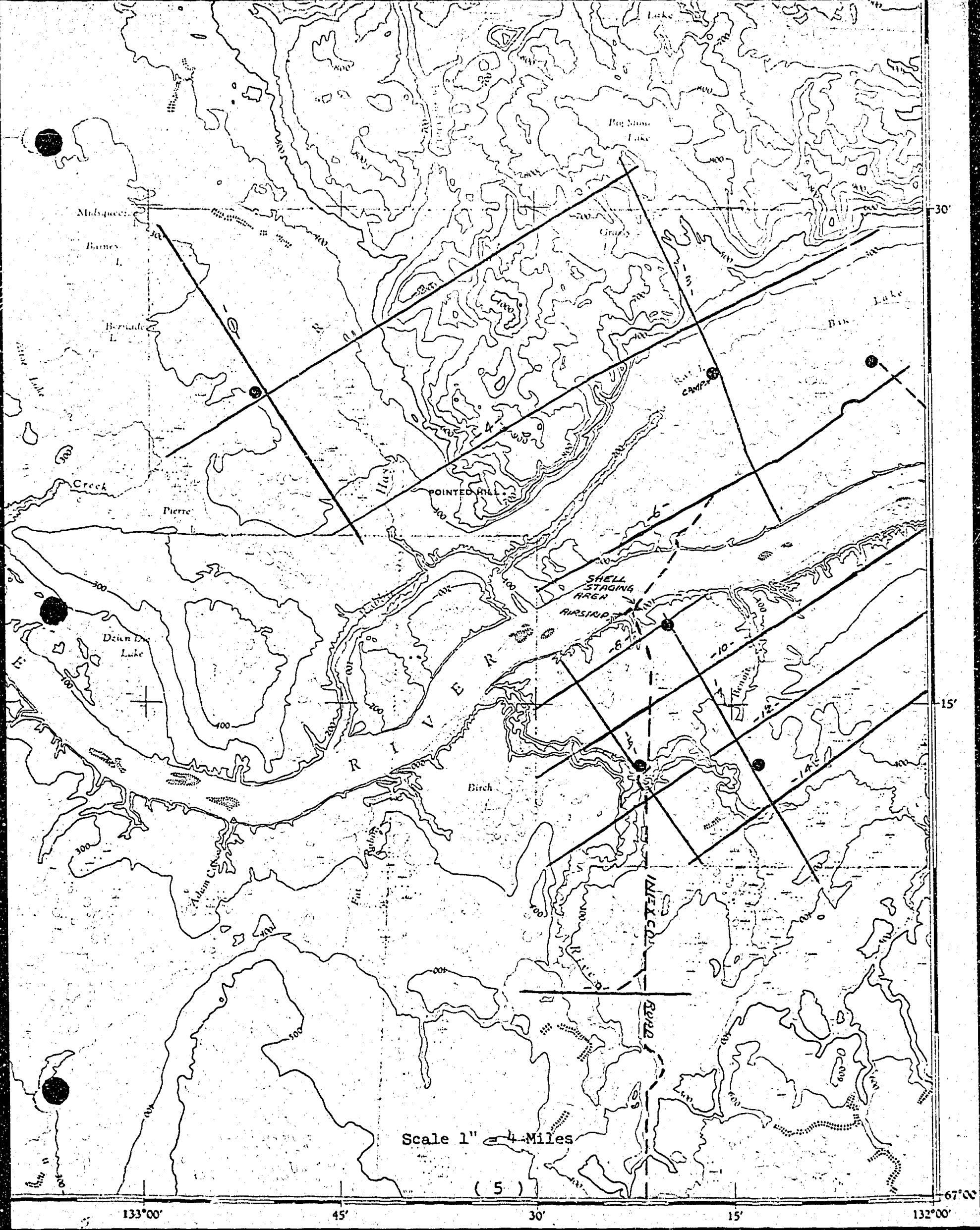
Respectfully submitted,

GLOBE UNIVERSAL SCIENCES CANADA LTD.



F. D. Durand
Supervisor

/clf

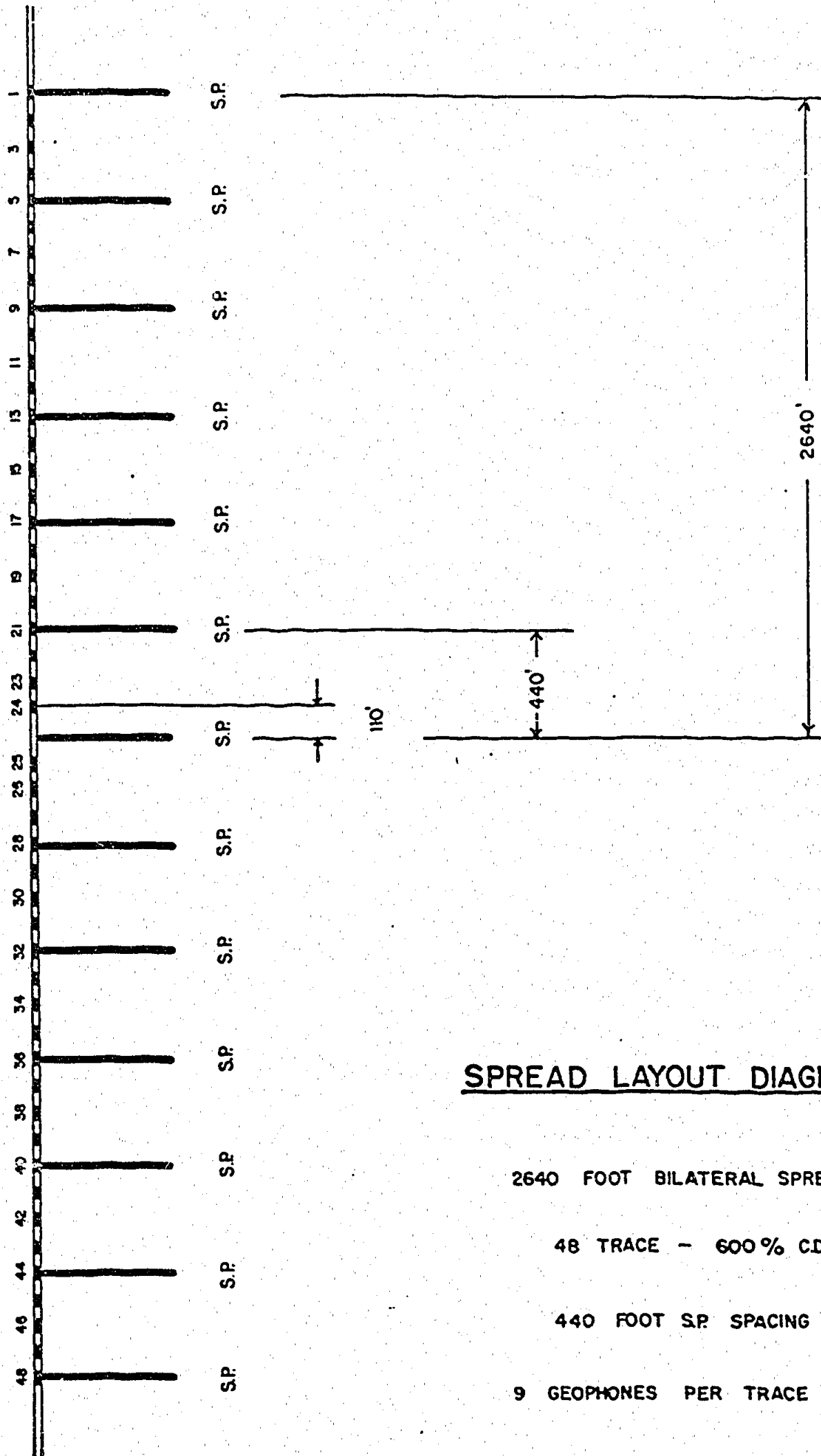


Scale 1" = 4 Miles

(5)

GROUP

GROUP



SPREAD LAYOUT DIAGRAM

2640 FOOT BILATERAL SPREAD

48 TRACE - 600% C.D.P.

440 FOOT S.P. SPACING

9 GEOPHONES PER TRACE AT 14'

GEOPHYSICAL DATA FOR SEISMIC SURVEY

LOCATION

Area and Province

TREE RIVER N. W. T.

Longitude and Latitude

67°10' - 67°31'
132°00' - 133°00'

Permit Numbers and
Government Project Number

N73B346

TYPE OF SURVEY

Analog or Digital

DIGITAL BINARY GAIN

Type of Source

DYNAMITE

FIELD RECORDING EQUIPMENT

Seismometer Model

GEOSPACE MODEL II D

Seismometer Frequency

8 CYCLE

Seismometer Damping

2000 ohms
.65 Critical

Seismometer Base

SPIKED

Amplifier Model

GLOBE 4000

Camera Model

SIE ERC 10

Type of Magnetic Tape

1/2"

Digital System Model and
Number

GLOBE HDDR #6

Land Survey Instrument and
Method

T-16 Wilde
Latitude and Departure

Cables

Portable - 4 stations
per segment

FIELD PROCEDURE AND OPERATIONS

Refraction

Inline or Broadside

Reflection

% of Subsurface Coverage

600%

Spread Configuration

Number Groups Recorded

48

Group Interval

110'

Number Seismometers/Group

9

Array Pattern

Inline 20' Spacing

Source Configuration

Number of Holes and Depth

Single 50'

Spacing

Pattern

One

Inline or Offset to Spread

Inline

Charge Size and Type

1 x 10 lbs velogel

Transportation

Type of Vehicles

Tracked Nodwells
and Bombardier

Fixed Wing Aircraft

Local

Helicopter Support

Local

Terrain Conditions

General Terrain Description

Gently rolling

moderate tree cover

RECORDING FACTORS

Monitor Record

Filter

10 - 100

AVC

Gain

AGC

Magnetic Tape

Filter

10 - 100

AVC

Gain

AGC

Field Playbacks
Filter

25 - 50

AVC

Gain

AGC

Mixing

NIL

PERSONNEL

Field Supervisor

F. D. Durand

Party Manager

A. Hyrve/ W. Harrison

Surveyor

J. Savin, L. Armstrong

Operator

B. Thomas, D. Szaroz

OFFICE TECHNIQUES

Datum Computation

c/o Western Decalta

Weathering Sections

Record Sections

c/o Western Decalta

Type of Display

Maps

STATISTICS SUMMARY

Number of Working Days

41

Number of Profiles
Reflection

1882

Refraction

Total Production

Miles of Surface Coverage

156.58

Miles of Subsurface Coverage

Number of Shot Holes Drilled

1913

Total Footage Drilled

100230

TRANSMITTAL OF RECORDED DATA

Mr. Len Motiuk
Western Decalta Petroleum Ltd.
630 - 6 Avenue S. W.
Calgary, Alberta

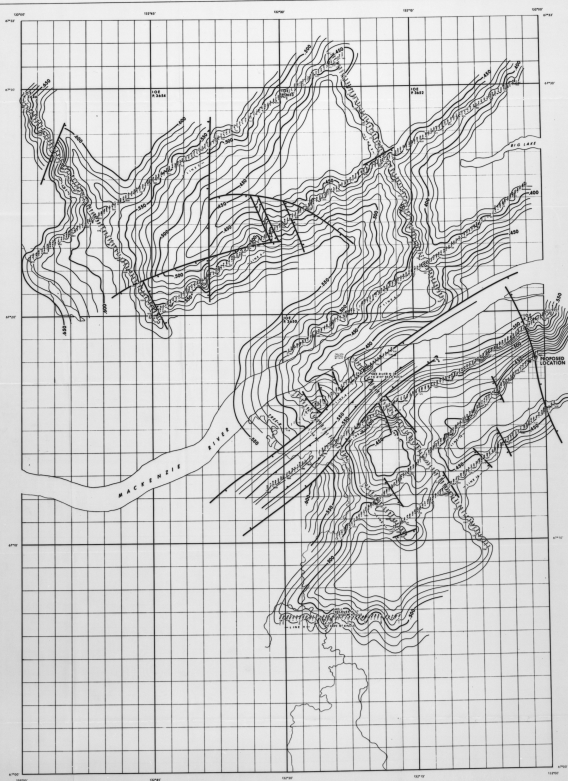
DATA PROCESSING

Structure sections to Datum	500' ASL
Replacement velocity	10,000'/sec.
Band pass filter length	18/23 - 60/65 Hz
	Gate 0-2000 ms

RESULTS

Data were generally fair to good. A time structure map was made on the Hume reflection.

No isochron maps were made as reflections above (Canol) and below (Delorme, Proterozoic) the Hume were sufficiently erratic to render these maps misleading.



019-06-05-048

NOTE: Micromat control was based from the 105 Tree River N.W. 100 well.
Drawn by: Shale Universal Services - Party No. 8WESTERN OIL & GAS PRODUCTION LIMITED
CALGARY, ALBERTA

100-N-10

Reflection Time:

Middle Devonian - Bone Pm.

TREE RIVER PROSPECT

N.W.T.