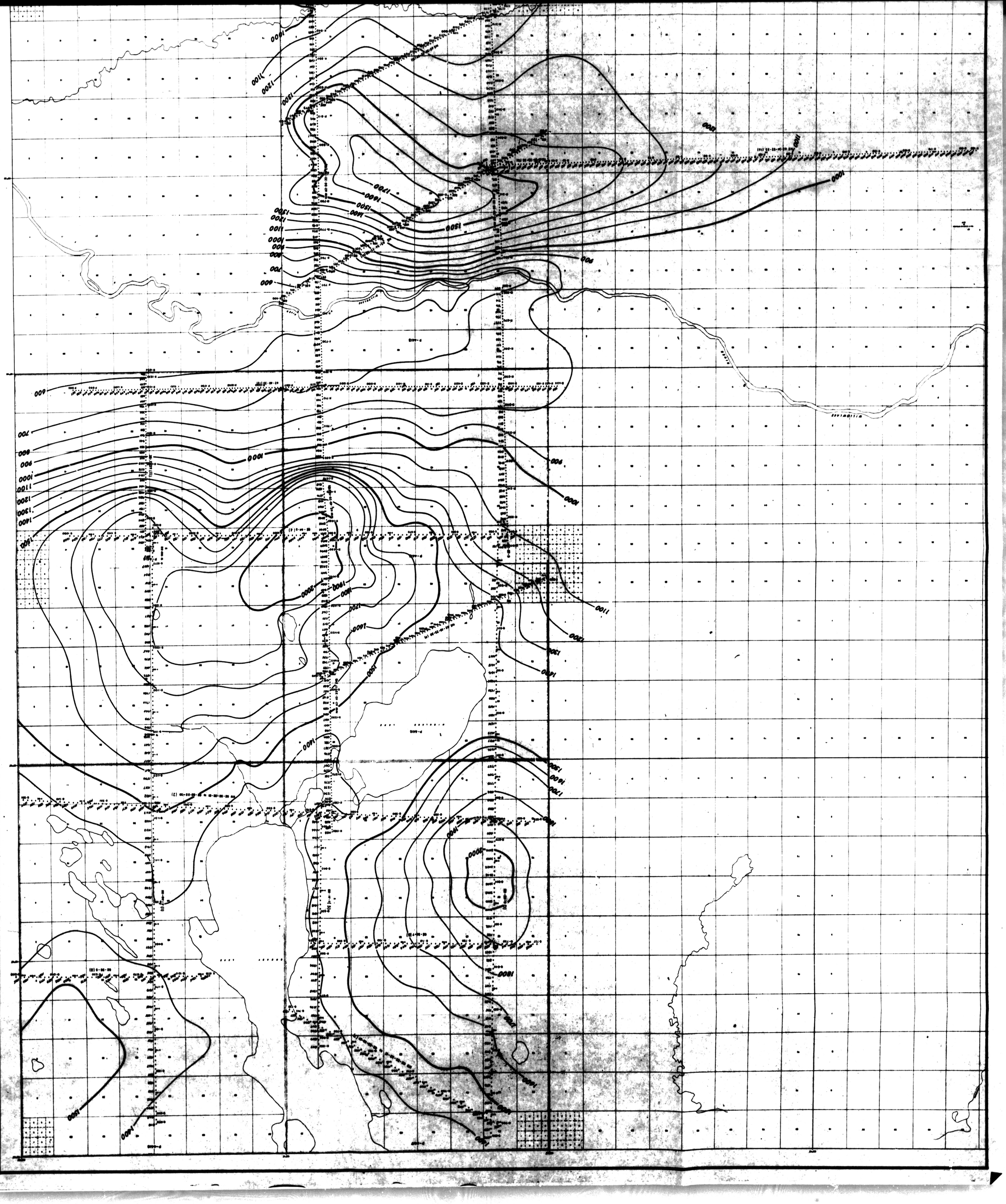


AQUITAINE COMPANY OF CANADA LTD.

HIGHLAND LAKE AREA

SURFACE ELEVATION MAP

DATUM ELEVATION	CORRECTION VELOCITY	CONTOUR INTERVAL
DATE JULY 1972	SCALE 1" = 1 mile	INTERPRETED BY P. TESANOVIC
REVISED	DRAFTED BY	FILE NO

673-6-4-40
Extt.

HIGHLAND LAKE AREA

Permit Numbers: 4413, 4414, 4415, 4416, 4417
Location: 95-J-9

FINAL GEOPHYSICAL REPORT
REFLECTION SEISMOGRAPH SURVEY

February 11, to March 15, 1972

P. M. Tesanovic - August, 1972

2 maps in attached binder

AQUITAINE COMPANY OF CANADA LTD.

GEOPHYSICAL EXPLORATION SURVEY

HIGHLAND LAKE AREA

(N.W.T.)

Permit Numbers: 4413, 4414, 4415, 4416, 4417

Location: 95-J-9

Survey Type: Reflection Seismograph

for

AQUITAINE COMPANY OF CANADA LTD.

Calgary, Alberta

Report by

P. M. Tesanovic

Submitted: In support of an affidavit regarding work done pursuant to the Petroleum and Natural Gas Act

Work Period: February 11, 1972 through March 15, 1972.

Enclosures: Two maps in attached binder.

Contractor

NORTHERN GEOPHYSICAL LTD.

Party No. 1

Calgary, Alberta

August, 1972

TABLE OF CONTENTS

AQUITAINE
COMPANY OF CANADA LTD

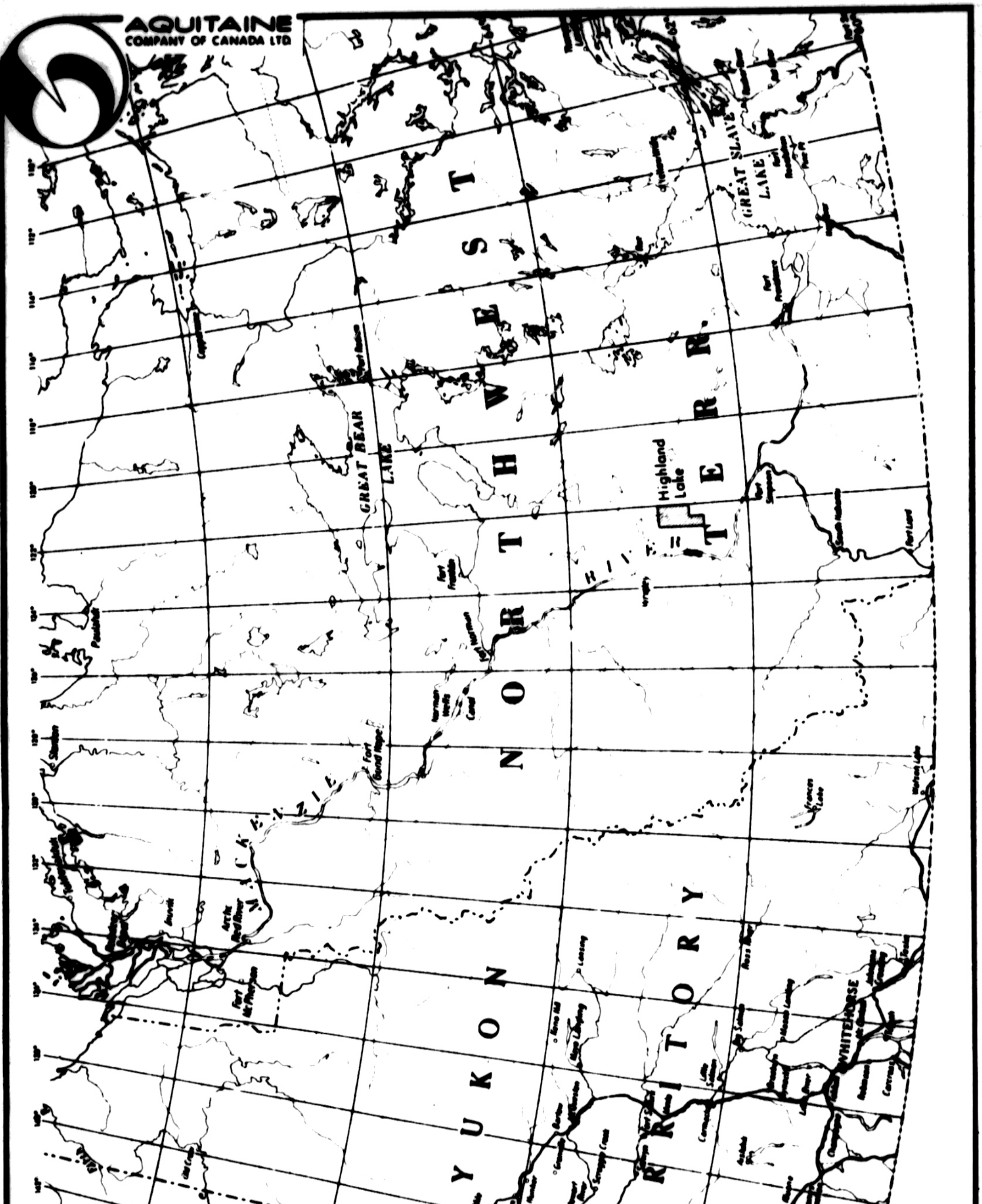


PLATE I

INTRODUCTION

The Highland Lake prospect is located within the boundaries of latitude 62° 30' 00" and 63° 00' 00", longitude 122° 00' 00" and 122° 30' 00".

The access road is approximately 80 miles from the Ft. Simpson to Norman wells existing road, and approximately 20 miles east to Highland Lake prospect by an existing trail. The seismic program was conducted by Northern Geophysical Company Ltd., Crew No. 1. Operations commenced on February 11, 1972 and were completed on March 15, 1972.

The object of the survey was to conduct a seismic reconnaissance program to evaluate the area for the detection of any kind of trap mechanism. The program consisted of 106.3 miles of 600% C.D.P. shooting. Structure sections were prepared and provided the basis of the interpretation.

Approximately 91 miles of 200% C.D.P. data was shot in 1968 by Banff Oil Ltd.

FIELD PROCEDURES

The crew worked from a mobile trailer camp located on the prospect. Tracked and wheeled vehicles were used in the survey. The field personnel consisted of 44 persons, including sub-contractors who worked under the direction of Party Manager, Mr. J. W. Corbett.

Supervision of the operation was by Mr. P. Tesanovic for Aquitaine Company of Canada Ltd., and by Mr. I. Bishko for Northern Geophysical Ltd.

The initial work on records was done in the field camp office by a field clerk. Data preparation and processing of the sections was done in Aquitaine's office in Calgary, Alberta. Three computer personnel were sub-contracted by Aquitaine Company of Canada Ltd. for a period following the field operations.

..../2

Surveying

The survey control was based on the legal survey for the Horn River Candel et al Ebbutt J-05 well and Horn River Candel et al Willow Lake G-47 well. The average difference of +125 feet between the elevation of the old shooting and the recent data was adjusted. All shotpoints and all stations were surveyed. Loops were tied and hanging lines were double run. Temporary bench marks (tree tags) were set up at line intersections and intersections with other existing lines were noted.

Bulldozing

Four Caterpillar tractors (three D-6's and one D-7) were used for line cutting, clearing and dragging. The tractors worked 24 hours per day in two shifts to prepare 3.02 miles of line per day.

Drilling

Drilling equipment consisted of three rotary and two Auger drills. Three 1,700 gallon tankers assisted in the drilling operations. At the shotpoint locations, one hole was drilled to a depth of 60 feet and pre-loaded with 10 pounds of high velocity powder (Geogel 60%).

Recording

Geophone locations were located every 220 feet and shot hole locations placed every second station (440 feet) to give a 600% subsurface coverage. The basic record was 24-trace split spread. The recorder rolled in and out the ends of the cable so that each line began and ended with 12-trace record (See Plates II, III and IV).

Each geophone group consisted of nine Mark L-2, 14-cycle geophones over 200 feet. The data was digitally recorded with the SIE Model PT-800 binary gain recording system using a nine-track tape.

..../3

Processing

The field reels were processed in Calgary by Aquitaine's computer and plotter. Structure sections have been prepared, corrected for weathering, drift, elevation and datum using an automatic program. The structure values are referred to a datum of 1,400 feet at a reference velocity of 10,500 feet per second.

RESULTS, CONCLUSIONS and RECOMMENDATIONS

The quality of the data is good to locally poor. Only one reflection, identified as the Nahanni, can be correlated throughout the area. Some deeper reflections can be correlated only locally.

Since the new shooting was primarily designed for reconnaissance purposes, it is difficult to delineate small local structures. The regional trend is for west dip with local faulting noted. At present there are no geophysical recommendations for this area.

RESPECTFULLY SUBMITTED,

AQUITAINE COMPANY OF CANADA LTD.,

P. Tesanovic, P. Geophysicist.

REVIEWED AND APPROVED:

D. G. Aubin, Chief Geophysicist.

SHOTPOINT SPACING 24 TRACE SPLIT FOR VARIOUS STACKS

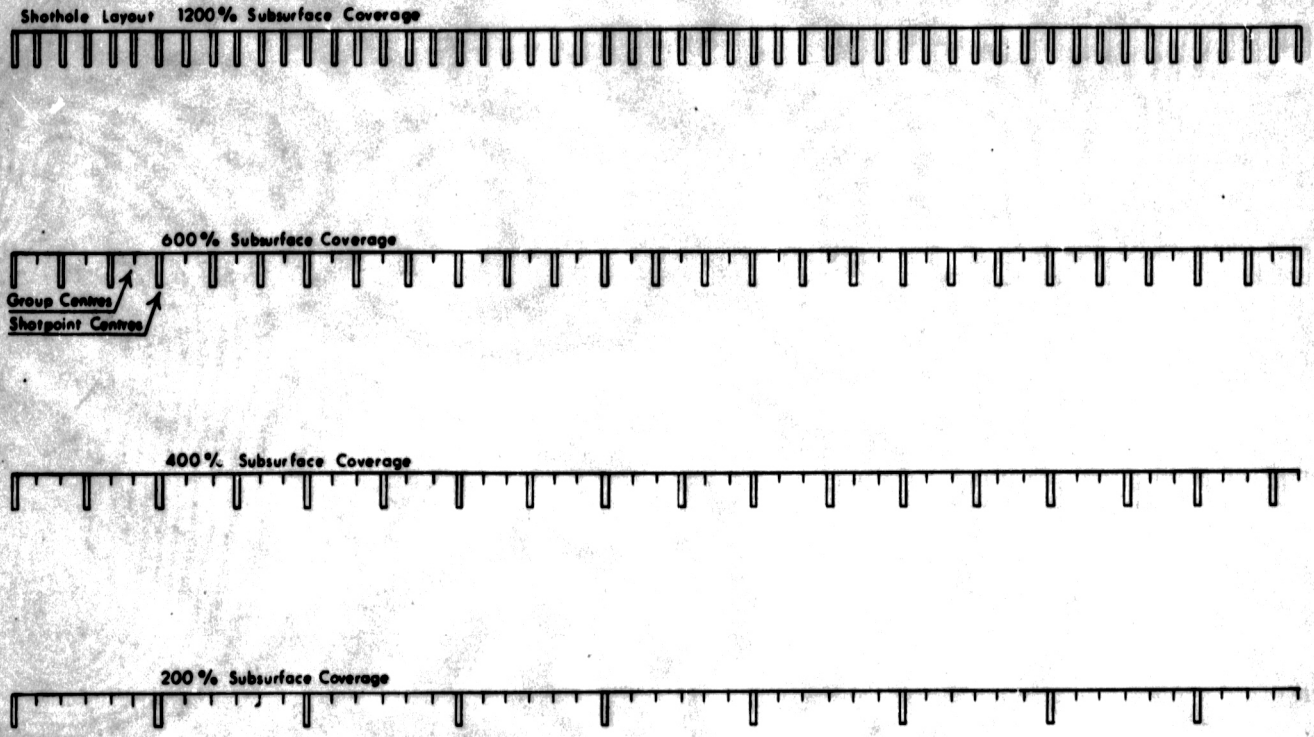
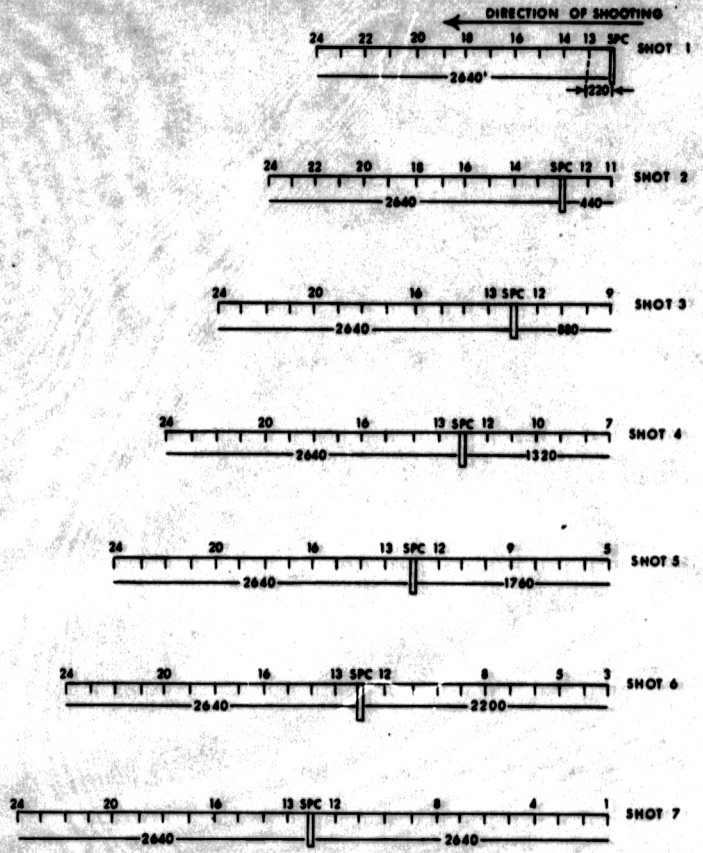


PLATE II

SOUTH/WEST

CABLE LAYOUT SHOWING ROLL IN/OUT
(FOR 600 % ONLY)

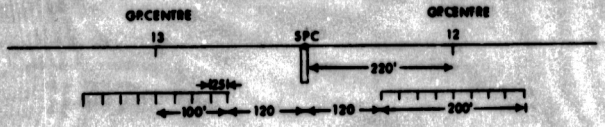
NORTH/EAST



NORMAL SPLIT SPREAD

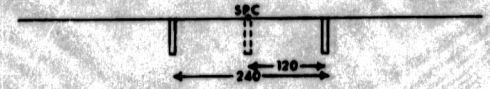
PLATE III

PATTERN HOLE SET-UPS AND GEOPHONE SPACING

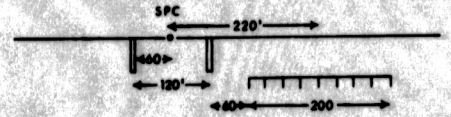


SINGLE HOLE

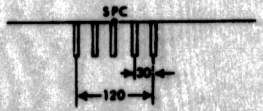
9 GEOPHONES PER TRACE



TWO HOLES - THREE HOLES
(WIDE SPACING)



TWO HOLES
(NARROW SPACING)



5 HOLES

PLATE IV

SUMMARY OF SUB-CONTRACTORS

LINE CUTTING AND CLEARING

Keen Industries Ltd.	Fort Simpson, N.W.T.

SLASHING AND BRUSH DISPOSAL

Keen Industries Ltd.	Fort Simpson, N.W.T.

WATER TANKERS

Northern Geophysical Ltd.	Calgary, Alberta

SEISMIC CAMP

Northern Geophysical Ltd.	Calgary, Alberta

SUMMARY OF EQUIPMENT

RECORDING — 10 men

1 set - SIE - PT 800 24-channel recording instruments and auxillary equipment mounted on a truck.

2 - One-ton cable trucks

1 - One-ton shooting truck

DRILLING CREW — 13 men

3 - Mayhew-1000 combined air and water drills mounted on wheeled vehicles.

2 - Mayhew top drive drills mounted on wheeled vehicles.

1 - Mayhew conventional drill mounted on a wheeled vehicle.

2 - Water tanks with 1,700 gallon capacity mounted on wheeled vehicles.

SURVEY — 4 men

2 - One-ton pick-up trucks.

CAMP — 7 men

1 - Kitchen/Diner/Storage

1 - Washcar

1 - Office

3 - Sleepers

1 - Power Unit

1 - Fuel Sloop

1 - Powder Magazine

2 - One-ton Pick-up trucks

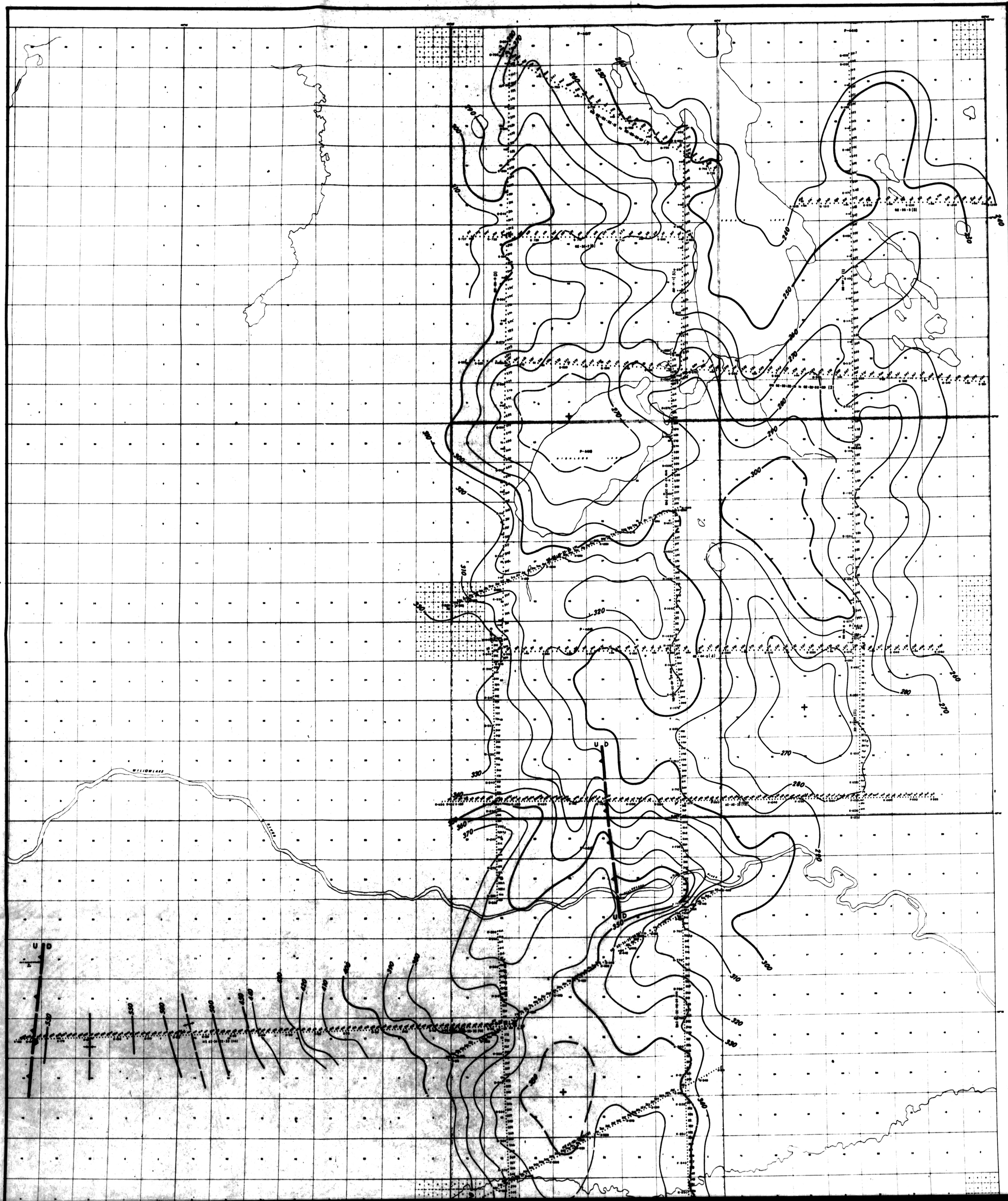
LINE CUTTING AND CLEARING — 10 men

3 - D-6C with hydraulic blade and winch.

1 - D-7E with hydraulic blade and winch.

STATISTICS

Operating days in the area (10 hours)	35.2
Number of holes drilled	1,275
Total footage drilled	73.168
Average hole depth	5,738
Pounds of dynamite used	13,296
Number of shots per day	36
Number of miles shot	106.3
Coverage per operating day (miles)	3.2


WILLOW LAKE
RIVER
U
D

AQUITAINE COMPANY OF CANADA LTD.

HIGHLAND LAKE AREA

HUME STRUCTURE

DATUM ELEVATION: 1400'	CORRECTION VELOCITY: 10,500' / SEC.	CONTOUR INTERVAL: 10 M. SEC.
DATE: JULY 1972	SCALE: 1" = 1 Mile	INTERPRETED BY: P. TESANOVIC
REVISED:	DRAFTED BY:	FILE NO: