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057-06-04-114

REPORT OF A

REFLECTION SEISMIC SURVEY

CONDUCTED FOR

MOBIL OIL CANADA, LTD.

BY

KENTING EXPLORATION SERVICES, LTD.

IN THE

TROUT LAKE AREA, N.W.T.
(COLES LAKE)

60° 00' NORTH, 122° 20' WEST

RECORDED JAN. 28/80 TO FEB. 18/80

PROJECT NUMBER 57-06-04-80-01

LAND USE PERMIT #N79B186

E.H. KOHSE

J.D. TESSMAN

MAY, 1981

Mobil

REPORT ON SEISMIC SURVEY
TROUT LAKE AREA, N.W.T.
(COLES LAKE, B.C.)

Submitted By: E.H. KOHSE
J.D. TESSMAN

RECORDED JANUARY 28/80 to FEBRUARY 18/80
BY MOBIL PARTY NO. 232 (Kenting #66)

PROJECT NUMBER 57-06-04-80-01

LAND USE PERMIT NUMBER N79B186

Mobil Oil Canada, Ltd.

May, 1981.

FIELD OPERATIONS

Access to the project when the crew moved into the area was by the Cabin Lake Road and a portion of the Simpson Trail, all within British Columbia. However, they were later able to utilize a portion of the Fort Liard Road for supplies and personnel from Fort Nelson, B.C. Existing seismic lines were opened from the Simpson Trail to the campsite which was situated in the N.W.T. at the intersection of lines 232-N-070 and 071 (see Access Map, Enclosure 3). All operations were conducted from this campsite. No air-strips were constructed. Emergency parts and personnel were moved by helicopter from Fort Nelson, B.C.

The most serious problem encountered in this survey was the difficult terrain in the Petitot River valley and on the tributary streams immediately adjacent to the Petitot River. Local relief of 60 - 100 m. can be encountered in these areas. Away from the river, terrain is dominated by flat open muskeg with patches of light timber cover. Only one line was programmed to attempt a tie across the river and this was 232-N-066. Shooting this line was found to be impractical and the lines was terminated on the north side of the river.

A second problem was the lack of water for shot-hole drilling. Water from the Petitot River was not always available due to the grades encountered on the banks of the

INTRODUCTION

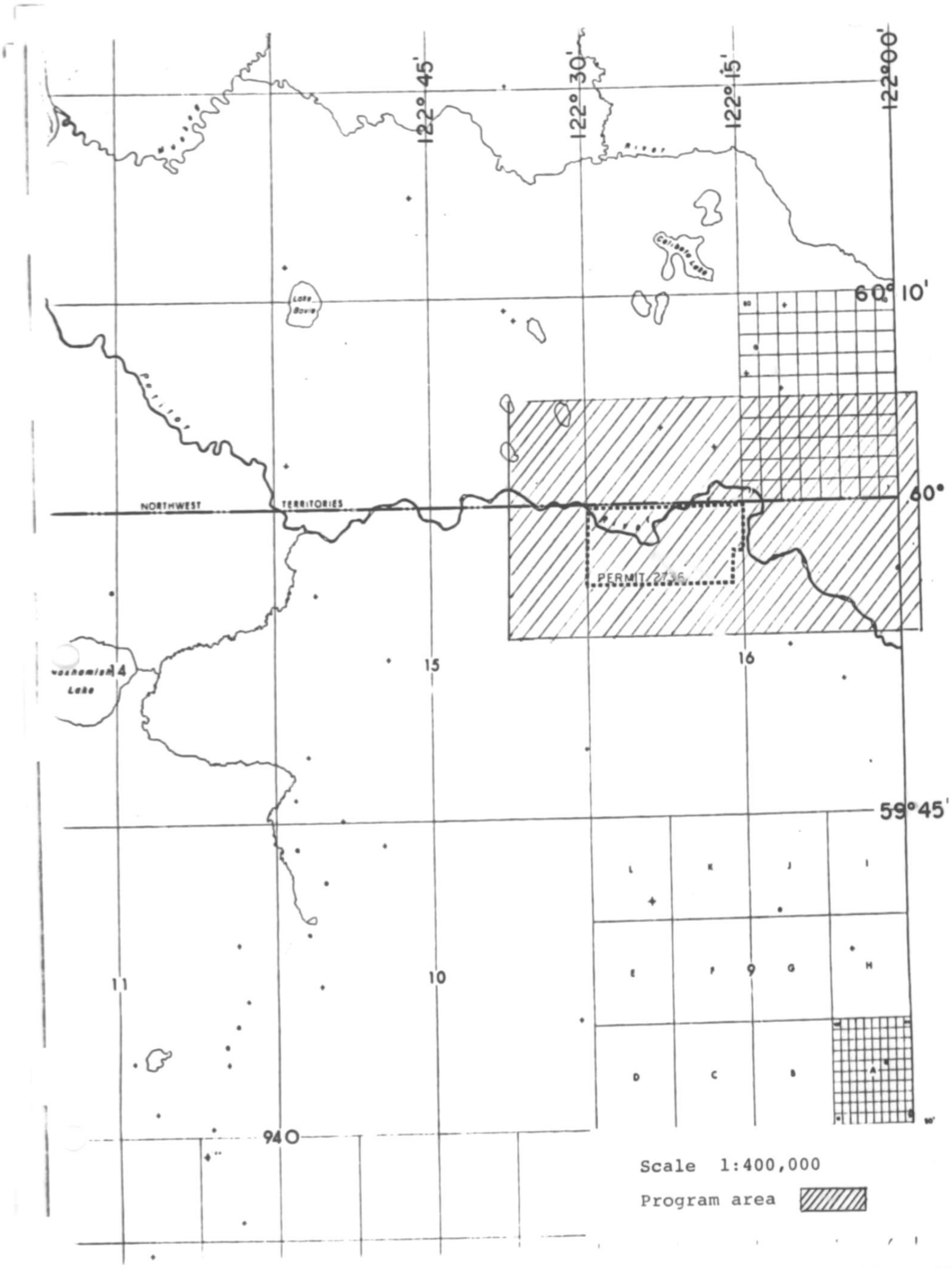
This report deals with a seismic survey conducted for Mobil Oil Canada, Ltd. by Kenting Exploration Services Ltd. in the general Coles Lake (Trout Lake) area of south western N.W.T. The survey was conducted from the border to approximately 8.5 km's north. Portions of a number of lines extend across the border into British Columbia. The general location of the area surveyed is shown on the index map.

Field operations by Mobil Party #232 (Kenting #66) commenced in the area on January 19, 1980 when bull-dozers started clearing seismic lines. Drilling commenced in the area on January 27th and recording on January 28th. Shooting in the area was completed on February 18th.

Because the portion of the project located in the N.W.T. amounted to only 74.35 km's, only 10 days were spent recording within the territories. These days were not consecutive. During the survey a total of 169 km. of 1200% subsurface coverage was obtained of which the remaining 95 km. was in British Columbia.

This report is submitted in fulfillment of the requirements set forth by the "Notice of Commencement of Exploratory Work" document, project #57-06-04-80-01 obtained by Mobil Oil Canada, Ltd.

Lines shot during the survey are shown on the accompanying shot point map labelled Enclosure 1 and surface elevations can be found on Enclosure 2.


122° 45'
122° 30'
122° 15'
122°00'
60° 10'
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Scale 1:400,000
Program area

production was provided by the Top drives who drilled an average of 160 m. per 10 hr. shift. This was followed by the Sewell Augers with an average of 148 m. per 10 hr. shift and the conventional with an average of 50 m. per 10 hr. shift. For the total project, including B.C., 1530 holes were drilled for a total of 25,366.6 m.

Recording commenced in the area on January 28th after the crew had moved from the Thinahtea, B.C. area and was completed on February 18, 1980. Instrumentation, parameters and geophone array details are listed below. A diagram showing the spread configuration is included and identified as Figure 1. Shot point, receiver group spacing and geophone array were standard for the prospect.

Traces/Record	48
Spread - Asymetric Bilateral	36 - 12
Subsurface Coverage	1200%
Shotpoint spacing	100 m.
Receiver group interval	50 m.
Receiver group length	136 m.
Geophones/Group	18
Geophone interval	8 m.
Near trace offset	200 m.
Geophone type	Mark L-15B (8 HZ.)

Bulldozing commenced on January 21, 1980 and was completed on February 12, 1980. Bulldozing equipment was contracted from Ken Borek of Dawson Creek, B.C. and consisted of four D6E bulldozers with wide pads and one John Deere farm tractor for dragging the lines. This equipment on single shift was generally able to provide sufficient open line for the recording crews.

Line clean up and restoration was contracted to Wayne Fell Slashing of Fort Nelson, B.C. The work was completed by spring breakup. The lines were inspected and approved by the Land Use Inspector from Fort Liard.

Shot-hole drilling commenced on January 27th and was completed on February 17th (entire project). Seven drills were used to complete the project. These consisted of 4 top drives, 2 Sewell Augers and one conventional rotary. Drilling conditions in the muskeg away from the river were fair to good. However, much poorer conditions were encountered near the river or its tributaries where gravel was present. Where gravel was present near the surface it could only be drilled by the conventional rig. In such cases the production was low, being from 1-3 holes per day. No flowing holes were reported.

Shot hole depth for this project was 18 m. (60 ft.) which was established from experimental work done in 1979. A typical hole log was clay, clay and boulders, and gravel in the locations noted above. The best drill

river. Most of the lakes shown on the map are shallow and were frozen to the bottom. This resulted in very long water hauls and considerable delays in drilling.

It would be advisable to increase the normal complement of two water trucks to three if work was to be attempted in the area again.

Other operators in the area constructed an ice bridge at the Simpson Trail crossing on the Petitot River. This access route was used for the move to the campsite. For actual field operations a river crossing was found just west of line 232-N-066. No ice bridge was constructed at this location since the river ice was sufficiently thick to hold field equipment.

Surveying was carried out by a six man crew from Prairie Surveys who were contracted to Kenting. Vertical and horizontal traverses were run using Wild T-16 Theodolites. Traverses were reduced in the field using TI-59 calculators and a geographic traverse program. Final coordinates were given in U.T.M. grid. Survey control was based on geodetic bench marks along the Simpson Trail and the B.C./N.W.T. boundary monuments. All closures were satisfactory and within limits set for this prospect. The survey tied satisfactorily with previous work.

The seismic events which can be mapped include the Upper Devonian Kotcho, Tetcho and Jean Marie and the Middle Devonian Slave Point. An isochron map of the Tetcho-Slave Point interval is provided which shows the thinning that accompanies the Middle Devonian barrier reef build-up. The reef is present in the northeast, north and northwest parts of the program.

Line 232-N-66 shows a typical basin to reef crossing and the deterioration of data quality towards the Petitot River. Also worthy of mention is the tying of lines 232-N-64 and 69 through the Home Signal CSP Celibeta #1 well (N60° 03' 43.16" W122° 22' 51.29", T.D. 6267 ft.) for interpretation purposes. This well was drilled in 1959-60 on a mapped thin but was eventually abandoned after testing in the Elk Point produced only salt water.

E.H. Kohse, Geophysical Specialist

J.C. den Boer, Geophysical Manager

for J.D. Tessman, Junior Geophysicist

The following computer processes were applied:

1) Demultiplex
2) Binary gain recovery
3) Trace edit to delete poor traces
4) Gather
5) Trace mute to suppress high energy first arrivals.
6) Deconvolve
7) Weathering statics
8) Velocity determination
9) Normal move-out corrections
10) Trace mute
11) Filter
12) Elevation - datum statics
13) Surface consistent statics
14) Residual statics
15) Stack
16) Gapped deconvolution for multiple suppression
17) Filter

INTERPRETATION AND RESULTS

The data quality ranges from poor in the western part of the program near the Petitot River to fairly good in the east and away from the river.

Recording Instruments	Sercel 338B
Gain Control	Binary
Sample interval	2 ms.
Recording filters	lo cut 12.5 HZ. @ 12 db/oct.
	hi cut 124 HZ.
Record length	3 sec.
Energy source	Dynamite (single hole)
Charge size	1.1 kg. (2.5 lbs.)
Charge depth	18 m. (60 ft.)

EXPERIMENTAL SHOOTING

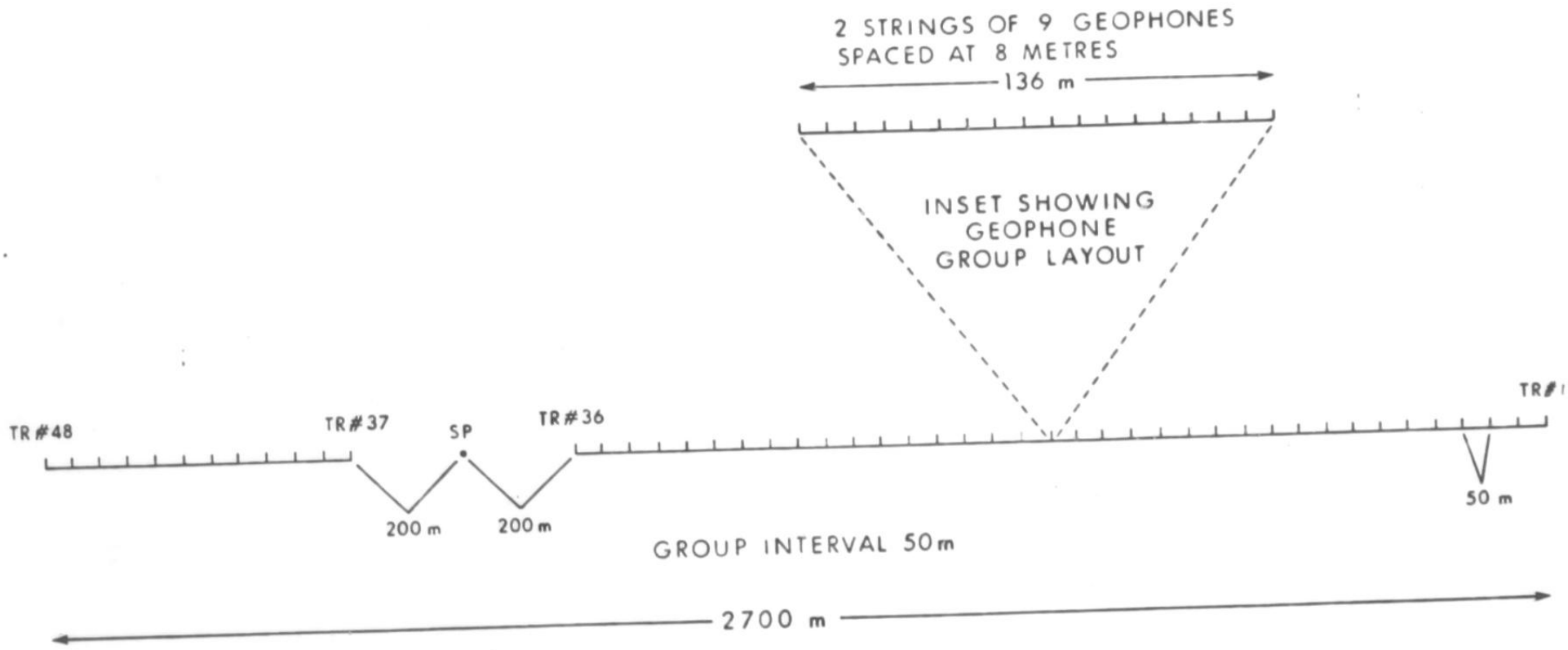
Field parameters for this project were determined from experimental work conducted in the area in 1979. At the beginning of the present survey a minor amount of testing was done in the muskeg north of the Petitot River. This consisted only of tests to determine optimum charge size and depth.

DATA PROCESSING

Computer processing of all data gathered was performed on Mobil's Pheonix computer facility based in Calgary, Alberta.

FIGURE 1

COLES LAKE, BC
SPREAD CONFIGURATION
12-36



STATISTICAL SUMMARY

		Total
Number of recording crew days worked	10	(22)
Number of shot holes drilled	673	(1530)
Total drilled (meters)	11148	(25337)
Total profiles	660	(1499)
Coverage obtained	75 kms.	(169)

Please note that these statistics have been adjusted to apply only to that portion of the program in the N.W.T.

The figures for the total project, including B.C., are shown in brackets on the far right.