OPERATIONS REPORT

038-06-06-047

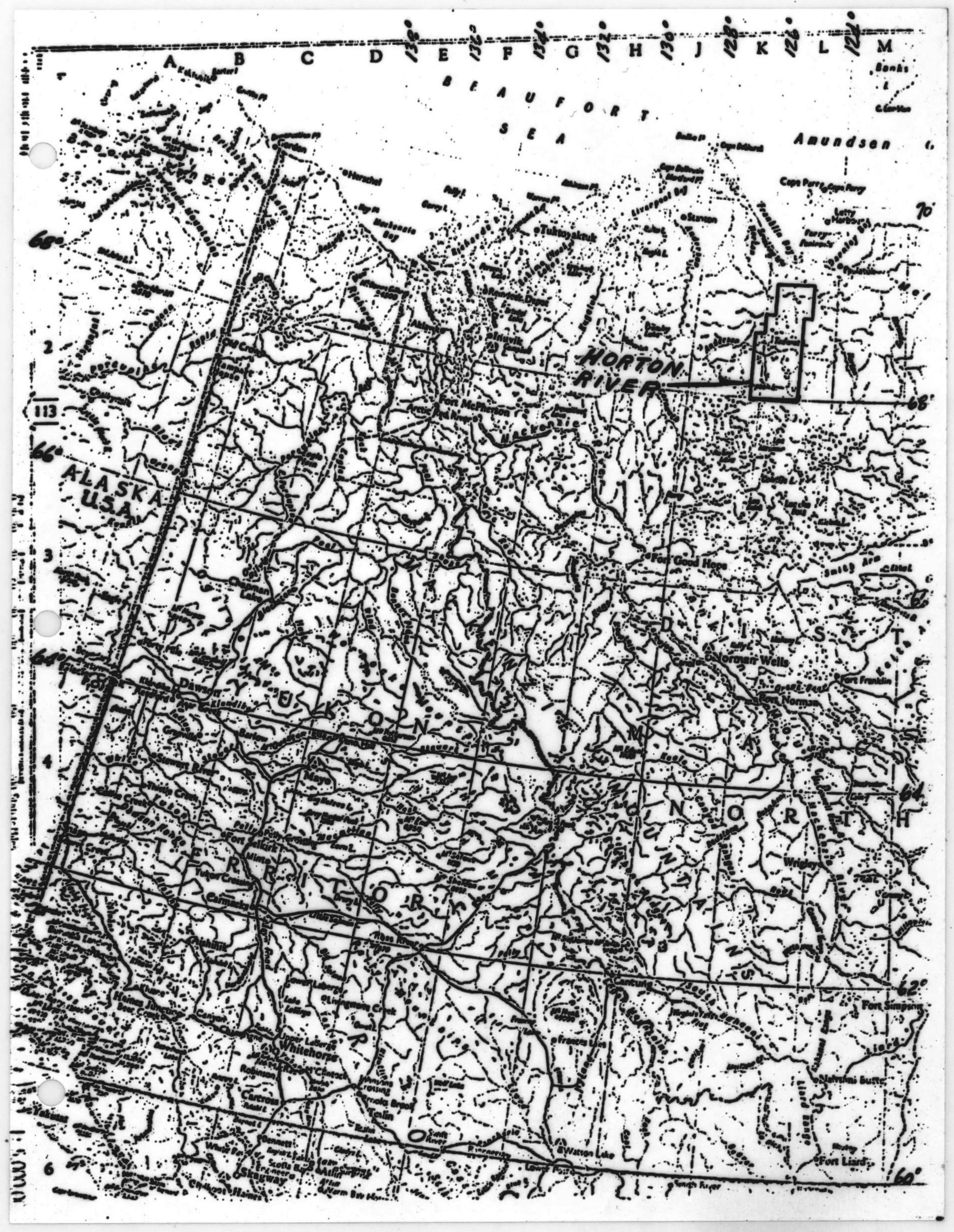
HORTON RIVER PROJECT
N.W.T.

TEXACO CANADA PERMITS 6042 to 6073
(68° to $69^{\circ}15'$N)
($124^{\circ}45'$ to $126^{\circ}15'$W)

GEOPHYSICAL SEISMIC SURVEY
CONDUCTED IN PERIOD JANUARY TO APRIL, 1975
BY
G.S.I. PARTY #1481
FOR
HUDSON'S BAY OIL AND GAS COMPANY LIMITED*

By
A. J. FERWORN, P.Geoph.
Hudson's Bay Oil and Gas Company Limited
Calgary, Alberta

* Acting as Operator on behalf of Itself and Great Plains Development Company of Canada Ltd.



INTRODUCTION

The Horton River Project consisted of 340 miles of 600% CDP coverage designed as a semi-reconnaissance program to follow-up prior, surface-geology leads.

G.S.I. Party #1481 recorded the data from January through April of 1975 under supervisiin of Party Manager Neil Vanson, GSI Supervisors Ted Popilchak and Doug Holder, and Al Ferworn of Hudson's Bay Oil and Gas Company Limited. Work was conducted under N.W.T. License No. 2150 and D.I.N.A. Land Use Permit #N74B892.

The crew mobilized at Little Chicago on December 27, 1974, moved out January 1, 1975 and arrived at the prospect January 15th. Average move temperatures ranged between -45°F to -65°F. In spite of the extreme cold, of considerable concern was the location of lakes with sufficient ice to hold cats (due to very heavy early snow fall). Consequently, fuel supply by planes was very tedious and difficult.

There were normally 40 men, including all contractors stationed in a portable, sled-mounted camp.

OPERATIONS

A. **Logistics**

All equipment, including cats and drills, were barged up the Mackenzie River from Tuktoyaktuk and Inuvik during the summer of 1974, staging at Little Chicago. The existing airstrip at Little Chicago was utilized for total air support from Inuvik during mobilization. All other airstrips were cleared on lakes. On-site, fuel and expendables for the operation were received by Twin-Otter and DC-3 from Inuvik (Aklavik Air Services).

All catering and camp servicing were looked after by GSI's own personnel.

Upon job completion the crew returned, via the original access route, to Little Chicago.

B. **Equipment**

5 FN-60 Nodwells --------Line, Shooting and Survey Units
1 Yukon Recorder
1 Snowmobile (Party Manager)
3 Nodwell-mounted Air Drills (Seisform Drilling)

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3 D-7 Cats (Beattie Contractors)
1 D-6 Cat (Beattie Constractors)
1 Flextrak (Cat Foreman - Shift Vehicle)
1 FN-110 (Drill Foreman - Shift Vehicle)

1 Snowmelter/Power Plant
1 Power Plant/Sleeper
1 Kitchen/Diner
1 Utility/Office Sleeper
5 6 Man Sleepers
1 2 Man Sleeper/Cable Repair
1 Shop and Parts
1 Power Plant/Kitchen
1 4 Man Survival/Power Plant Unit
1 Sleeper (10 Man)
3 Fuel Sloops

C. **Recording Equipment**

- Texas Instruments 48 channel DFS IV Binary-gain Digital "Floating Point" system with a Mandrel SDW-400 Electro Static Camera
- 120 Stations of 54 pair CDP Cables
- 200 Strings of 14 HZ Seismometers, 9 per string
- Shooting Equipment, including TI "Tone-Box" and Model K Blaster
- T2 Theodolite, K&E Transit, Gyro Instrument, Rods and Chaining Equipment
- 12 Motorola V.H.F. Radios for Field Communication
- Two Spilsbury-Tindal S.S.B. Radios for Camp
- 1 Air-to-Ground Radio
- 60% Geogel in 10 pound sticks

D. **Surveying**

Horizontal control was maintained by tieing to prominent land features such as lakes, creeks and existing lines. Bearings were frequently checked by star observations coupled with Gyro compass.

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Polariod photos were taken (from aircraft) of all key line intersections by Al McDougall, GSI's Survey Supervisor.

The highest elevation encountered was 1,086 feet at Shotpoint 101, Line 8.

Lowest elevation was 521 feet at Shotpoint 69, Line 18.

E. Drilling

Drilling conditions south of the Anderson River were extremely difficult in limestone and cemented gravels. Conditions improved as the work progressed northward.

Holes were preloaded with 20 pounds; charges at 60' for most of the program.

F. Bulldozing

The dozers were utilized for some line cutting (mainly pushing snow and sparse brush), moving camp, hauling fuel sleds and constructing air-strips. All dozer blades were fitted with "mushrooms" to prevent terrain damage.

The east end of Line 6 had to be cancelled due to extremely rugged terrain. No crossings of the Anderson or Horton Rivers were attempted save for the ice bridge constructed at the start of Line 4.

G. Recording

1. Experimentation

Source and receptor tests conducted on Line 1, at the start of the program, were inconclusive due to very poor data.

2. Production Recording

Spread: 5280'-220'-0-220'-5280' (1)
Nests: 18 phones/trace inline over 255'
Source: 20 pounds at 60'
Coverage: 600% CDP; S.P. Interval 880'
Records: 6 sec. at .002 sec. sample rate; I.F.P. mode
Record Filters: 8-124 Hz (18 Hz slopes); notch filters out.

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(1) Lines 19 and 30 were shot with assymetrical 12/36 trace splits to compare interference of first breaks in the shallow data

PROCESSING

All traces were referenced to 700' using a replacement velocity of 17,500'/sec. Data were processed by Sefel J. & Associates Ltd. using the following sequence:

i) Demultiplex, edit, recover gain and resample to .004 sec.

ii) Decon - 19 point (.300 to 3.600 sec. window)

iii) Filter: 20-80 Hz (0 to 1.200 sec.)
15-80 Hz (1.200 to 4.000 sec.)

iv) Elevation and weathering statics (computed by Sefel using first break plots) to 700' datum

v) N.M.O. and Autostatics for trim

vi) Constant Velocity Stack and Stack

vii) Filter: 25 to 70 Hz (o to 4.000 sec.)

All data were displayed at 7.5"/sec. in variable-area mode.

DISPOSITION OF ORIGINAL DATA

Hudson's Bay Oil and Gas Company Limited as Group Operator, holds the following data:

1. Observer's, Driller's, Shooter's and Surveyor's Reports
2. Digital Field Tapes and Field Monitor Records
3. Film Sections and 1/2 scale vellums of all 30 lines
4. Velocity Scan Data and Experimental Sections

STATISTICS

Pertinent Dates

Mobilized at Little Chicago	December 27, 1974
Commenced Move to Prospect	January 1, 1975
Commenced Recording	January 18, 1975
Completed Recording	March 29, 1975
Arrive Back - Little Chicago	April 5, 1975

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Actual Recording hours	682.5
Travel hours	197.0
Total hours	879.5 (2)
Profiles recorded	2,056.0
Total miles coverage	339.2
Total dynamite used	39,892.5 lbs.
Dynamite used per shot	20.0 lbs.
Total number of caps used	2,124.0
Total footage drilled	104,145.0'
Total drill hours (working)	1,748.5
Total drill hours (move)	902.0
Total bulldozer hours (including move-in)	6,887.0 (3)

Submitted By: A.J. Ferworn
A. J. FERWORN, P.Geoph.

DATE: Aug 13, 1975.

(2) Experimental program conducted at start of Line 1 and at the junction of Lines 7 and 9. (These were conducted on an hourly basis versus the "turnkey" rate of normal production recording).

(3) An extremely, heavy, early snowfall necessitated many hours in bulldozing, especially detours around lakes where the ice was not thick enough for trespass.