

Report on Territorial Oil and Gas Permits
3245 and 3252 to 3254 inclusive, Redstone
Area, N.W.T.

Progress Report for Period November 30, 1961
to May 30, 1963. Submitted in support of Appli-
cation for Credit.



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Report on Territorial Oil and Gas Permits 3245
and 3252 to 3254 inclusive, Redstone Area, N.W.T.

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*Shells 2 + 3
received*

Progress Report

Introduction

Imperial Oil Limited acquired Territorial Oil and Gas Permits 3245 and 3252 to 3254 inclusive at the Northwest Territories Sale of November 30, 1961. They were issued to Imperial Oil Limited effective November 30, 1961. These permits are in their first eighteen month period of the first three year term which shall expire May 30, 1963.

River Seismic Operations

Accurate Exploration Ltd. were engaged to conduct a river seismic program consisting of a single line on the Mackenzie River from a point approximately fifteen miles upstream from Fort Wrigley to a point approximately twelve miles upstream from Fort Norman, a distance of approximately seventy-eight miles.

The Continuous Profiling (Stratometer) party consisted of four people as follows: Party Manager, Stratometer Operator, Surveyor and Mechanic-Boatman. Equipment consisted of: one Continuous Profiler (Stratometer) with six SIE P-11 amplifier channels; with one cable and six Scientific Service Laboratories D-183 hydrophones; Gas exploder with four firing chambers, along with flow gauges and coupling hoses; and, a Surveyor's sextant.

During the month of July, 1962, Accurate Exploration Ltd. on behalf of Imperial Oil Limited conducted five days of river seismic shooting along the Mackenzie River in the Redstone area. The boats used for this program were rented locally. A converted fifty foot fish packer, the "Omingmak", powered

by a 100 H.P. G.M. Diesel was used as a personnel boat and had crude cooking and sleeping facilities. The shooting boat was a twenty-four foot cabin cruiser powered by a 30 H.P. Greymarine Diesel.

A neutrally bouyant SSL cable was used with the gas exploder and had six pressure type crystal phones over a seventy foot interval. The first hydrophone was normally 450 feet back of the boat or 470 feet from the rear gun and 490 feet from the front gun. The cable was pulled in periodically a distance of 150 feet and then released. The gas exploder system consisted of two paravanes each containing separate firing chambers. These were placed on a bow to stern separation basis. The firing chambers were fed a mixture of five parts oxygen to one part propane and were fired automatically every two seconds. A continuous recording fathometer was run in conjunction with the shooting and six minute time pips were recorded simultaneously on the fathometer.

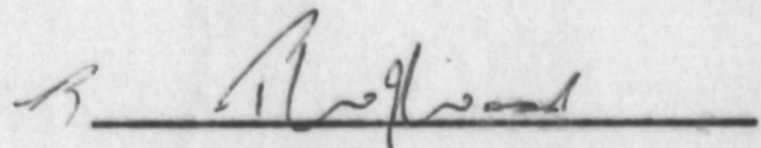
Surveying was done using a sextant and air photomosaics for horizontal control. Usually one position was taken every twelve minutes to coincide with every second time pip.

The program was shot in a downstream direction at a speed always just slightly greater than the current. Diesel power was used only when necessary and a Lark outboard was used for steering most of the program period.

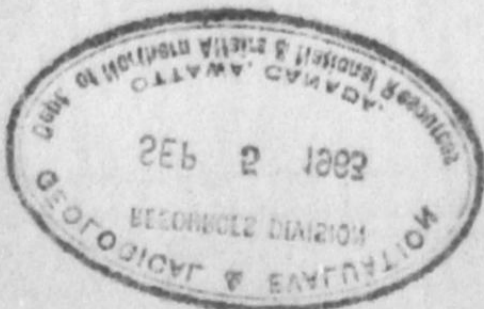
The results of this program were very disappointing. In the program area there is a limestone section approximately 1,200 feet below a clean shale. From this we expected a very marked limestone reflection but in fact got only

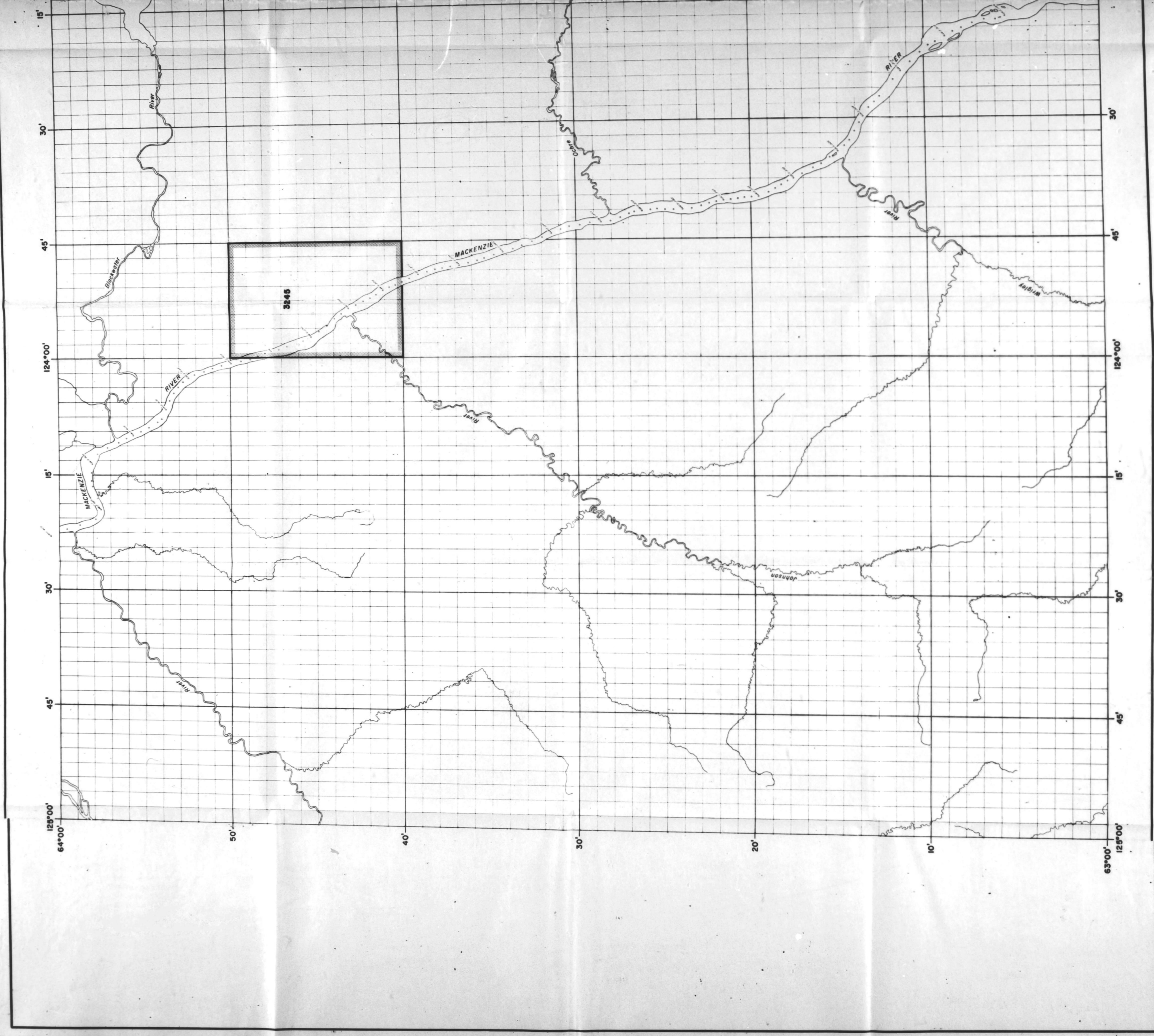
a very weak reflection indication on a very few miles. The sections were completely dominated by noise. The diesel noise overrode everything when these motors were being run. Considerable difficulty with the boats due to tricky currents and whirlpools made the use of diesel power necessary. When the diesels were not in use, a strong noise still appeared to dominate the section. This was due primarily to river turbulence. It would seem that some method is required by which river noise from turbulence can be overcome before successful record sections can be obtained. Due to poor records, no interpretative work was undertaken on this program and, therefore, no maps of this nature can be supplied.

August 8, 1963.

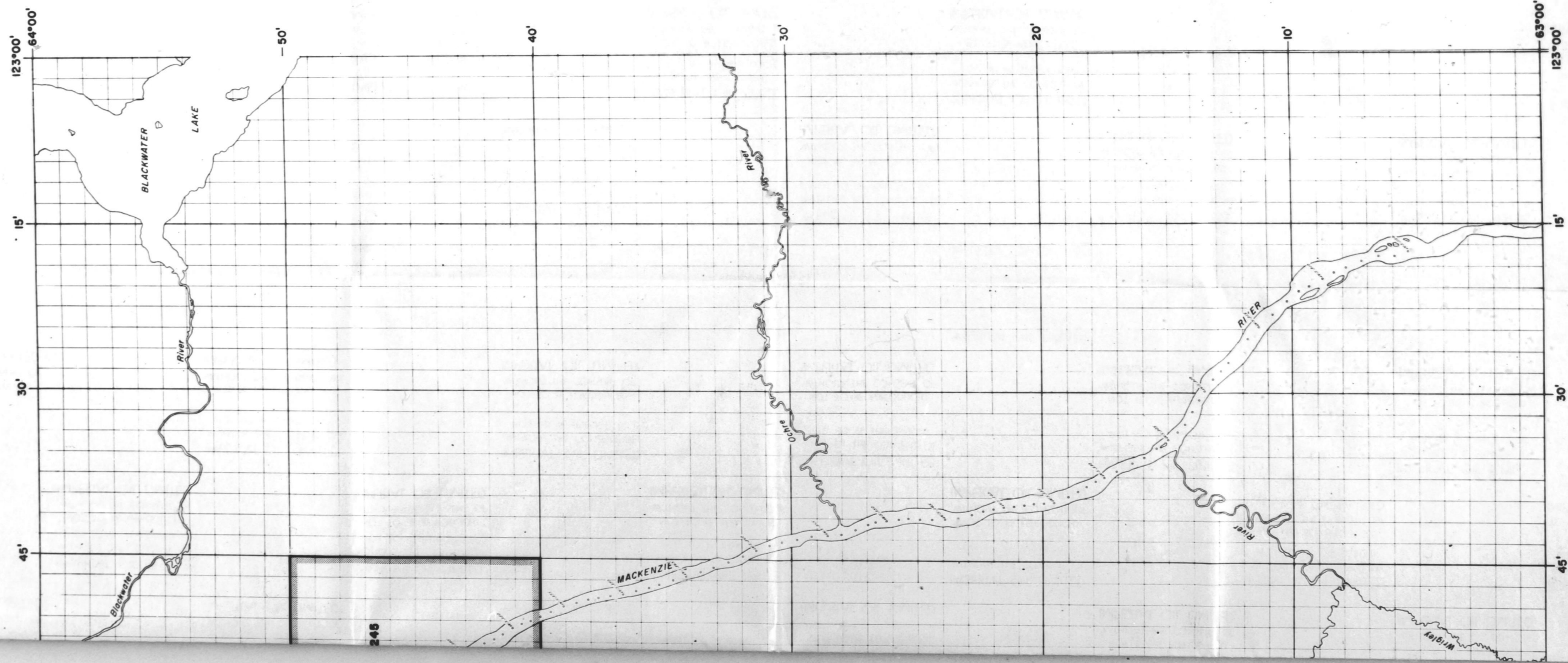


P. W. J. WOOD
DIVISION EXPLORATION MANAGER
PEACE RIVER DIVISION
IMPERIAL OIL LIMITED

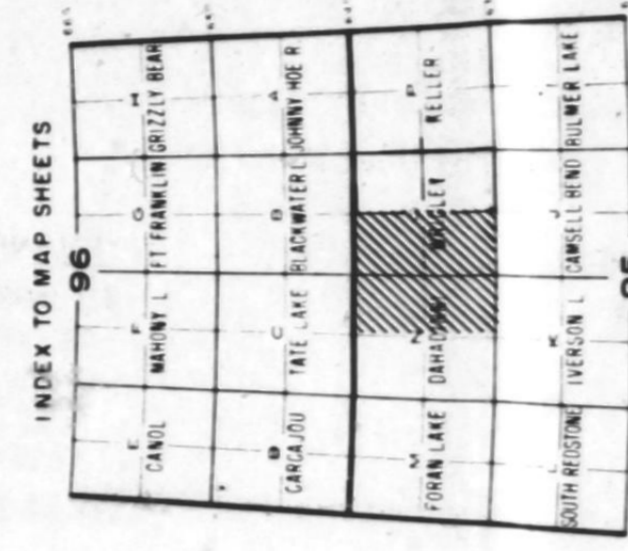
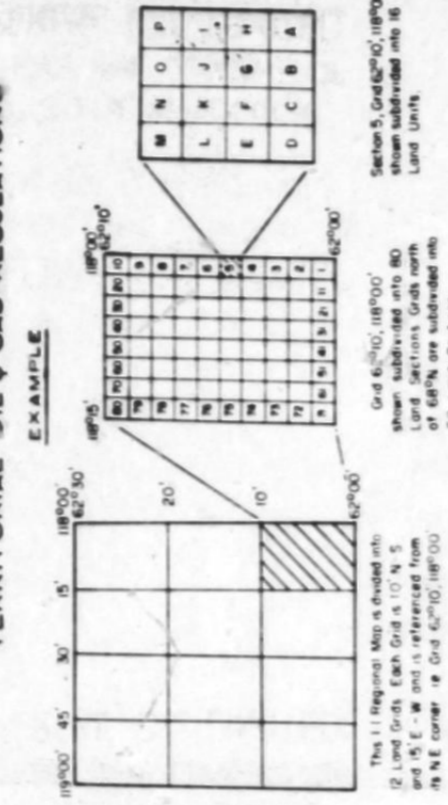




IMPERIAL OIL LIMITED
PRODUCING DEPARTMENT PEACE RIVER DIVISION



NWT LAND REFERENCING SYSTEM
AS APPLIED TO
TERRITORIAL OIL & GAS REGULATIONS



IMPERIAL OIL LIMITED
STRATOMETER SURVEY APPLICABLE TO
PACIFIC PERMITS 3246, 3252, 3253, 3254

SCALE: 1 MILE TO 1 INCH

SEISMIC SHOT HOLE LOCATIONS,
ELEVATIONS & TOTAL DEPTHS
DEPTH MAP
DATUM - SEA LEVEL
G - COAL SHOWS
O - GRAVEL SHOWS
PEACE RIVER DISTRICT
MARCH 18, 1983



SHEET 2
2 MILES TO 1 INCH

EXAMPLE

Figure 1 illustrates the steps in the construction of the 2^4 fractional factorial design. The design is constructed by starting with a full factorial design and then selecting a fraction of the design.

Step 1: A full factorial design is constructed with 16 runs. The design is shown in Table 1.

Table 1: Full Factorial Design

Run	Factor 1	Factor 2	Factor 3	Factor 4	Response
1	1	1	1	1	1.0
2	1	1	1	2	1.5
3	1	1	2	1	2.0
4	1	1	2	2	2.5
5	1	2	1	1	3.0
6	1	2	1	2	3.5
7	1	2	2	1	4.0
8	1	2	2	2	4.5
9	2	1	1	1	5.0
10	2	1	1	2	5.5
11	2	1	2	1	6.0
12	2	1	2	2	6.5
13	2	2	1	1	7.0
14	2	2	1	2	7.5
15	2	2	2	1	8.0
16	2	2	2	2	8.5

Step 2: A fraction of the design is selected. The design is shown in Table 2.

Table 2: Fraction of the Design

Run	Factor 1	Factor 2	Factor 3	Factor 4	Response
1	1	1	1	1	1.0
2	1	1	2	2	2.5
3	1	2	1	2	3.5
4	1	2	2	1	4.5
5	2	1	1	2	5.5
6	2	1	2	1	6.5
7	2	2	1	1	7.5
8	2	2	2	2	8.5

Step 3: A fraction of the design is selected. The design is shown in Table 3.

Table 3: Fraction of the Design

Run	Factor 1	Factor 2	Factor 3	Factor 4	Response
1	1	1	1	1	1.0
2	1	2	1	2	3.5
3	2	1	1	2	5.5
4	2	2	1	1	7.5

Step 4: A fraction of the design is selected. The design is shown in Table 4.

Table 4: Fraction of the Design

Run	Factor 1	Factor 2	Factor 3	Factor 4	Response
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6	1	2	1	2	3.5
7	1	2	2	1	4.0
8	1	2	2	2	4.5
9	2	1	1	1	5.0
10	2	1	1	2	5.5
11	2	1	2	1	6.0
12	2	1	2	2	6.5
13	2	2	1	1	7.0
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[illegible]

SEISMIC SHOT HOLE LOCATIONS,
ELEVATIONS & TOTAL DEPTHS

DEPTH MAP -
DATUM - SEA LEVEL

☐ C - COAL SHOWS ☐ G - GRAVEL SHOWS

PEACE RIVER DISTRICT

MARCH 10, 1963

SEP 11 1963
OFF. GEN. READER

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