



SHELL OIL COMPANY
CALGARY AREA
SHELL BUILDING
P O BOX 100
CALGARY ALBERTA

(27b)

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37-1-4-2

July 25, 1955.

Dr. A. Irwin,
Oil Conservation Engineer,
Department of Northern Affairs and National Resources,
Macdonald Hotel,
Edmonton, Alberta.

Dear Sir:

In compliance with Section 30 (1) (a) and (b) of the Territorial Oil and Gas Regulations, we submit the following report and map in respect of Permits 374 to 378 inclusive, 384, 385, 387, 388, 391, 392, 518 and 535 to 538 inclusive covering the second 18-month period of these permits. These permits have been grouped for purposes of exploration and expenditure.

No aerial photographs have been taken by Shell for the purpose of surveying these permits. No significant amount of geophysical work has been done in the period covered, that is up to June 3, 1955. The geophysical work which commenced on June 1, 1955, will be covered in the next report concerning this group of permits.

No wells have been drilled, nor any shot or core holes.

The geological and photogeological work done during the period covered by this report has confirmed the presence of Upper Devonian sedimentary rocks as the consolidated formations present at surface over almost all of the permit area. Two subdivisions of these strata are recognized, the Hay River limestones above and the Hay River shales below. The boundary between them trends about east-west across the group of permits near $61^{\circ} 30'$ north latitude (see map).

The Hay River limestone is argillaceous and moderately fossiliferous. The Hay River shale is somewhat calcareous and generally greenish in color.

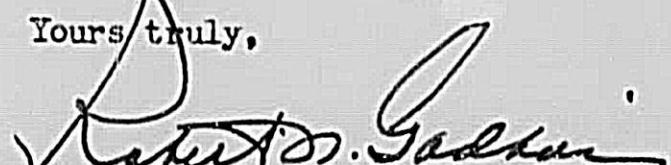


JULY 25, 1955

There are no significant structures shown in the Permit group by either the surface or the photogeologic mapping. The formations are almost flat-lying with a regional dip in the order of a few tens of feet per mile in a direction slightly west of south.

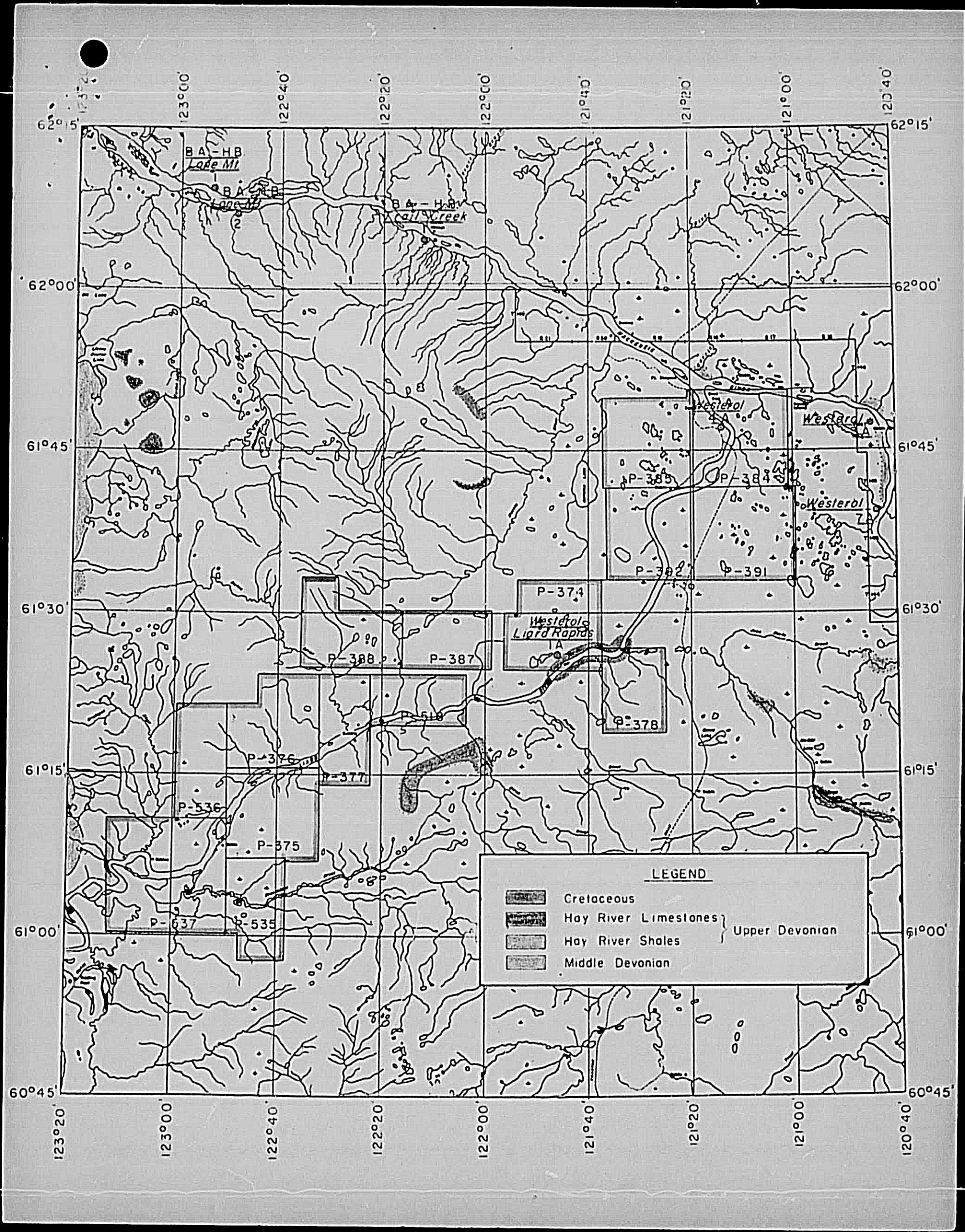
No seepages of gas or oil were observed in the permit group.

Yours truly,



Robert N. Gadbois
Manager, Land Department

RAB/mk
Encl.



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REPORT OF WORK COMPLETED UNDER
EXPLORATORY LICENSES NOS. 116, 122 TO 126 INCL.

In compliance with Section 5 (a) to (c) incl. of the Territorial Oil and Gas Regulations we submit the following report and enclosed map and plat in respect of the captioned exploratory licenses and of work done under these licenses on land not held under permit or lease.

From June 1, 1955 to December 31, 1955 Shell Oil Company has completed or has caused to be completed geological and/or photo-geological surveys within the area outlined on the accompanying map.

During the course of seismic work on our grouped permits Nos. 374 - 378 incl., 384, 385, 387, 388, 391, 392, 518, and 535 - 538 incl. in the Liard River area a few shot holes were drilled a short distance outside the limits of these permits. Those which intersected sand, gravel or water and the depths at which these substances were encountered are shown on the accompanying plat. Water was not encountered as an artesian flow, but was found in quicksand. No other potentially useful minerals were encountered in these shot holes. No core holes were drilled.

The work done during the period covered by this report was chiefly for the purpose of evaluation of the various permits held by Shell in the Northwest Territories. It therefore was done within the area discussed in our report dated June 27, 1955 (to which report please refer) and did not serve to add to or change the interpretation of the generalized regional geology summarized in our report of June



27, 1955. However, in gaining more detailed knowledge of the geology in and adjacent to our permits, some data of regional significance were obtained and these are summarized in the following paragraphs.

Cretaceous

In the general vicinity of the upper reaches of Hume River about 90 miles west of Norman Wells the Cretaceous was found to thin abruptly northward from the mountains. It has a thickness approximating that reported for the total Cretaceous in the Lower Mackenzie River area only in the terrain within a few miles of the mountain front.

Devonian

In the mountains between the mouth of North Nahanni and the mouth of South Nahanni river the Devonian was found to be at least twice as thick as the maximum thickness reported for the Lower Mackenzie River area (Hume, G.S.C. Mem. 273, pp. 8 and 9).

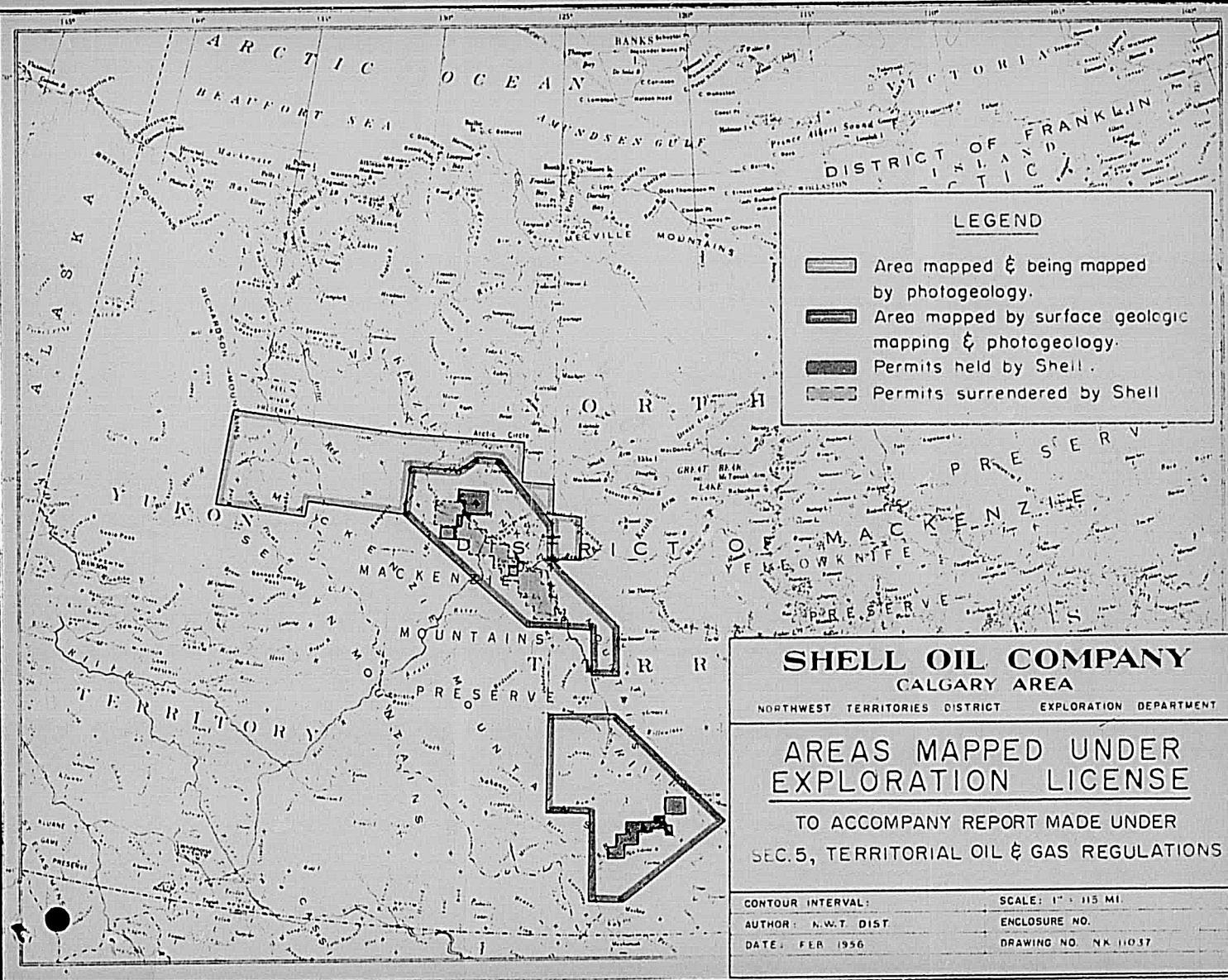
In the area between the Poplar and Blackstone Rivers about 55 miles southwest of Fort Simpson the regional strike of the Devonian was found to change from approximately east-west at Poplar River to approximately north-south at Blackstone River.

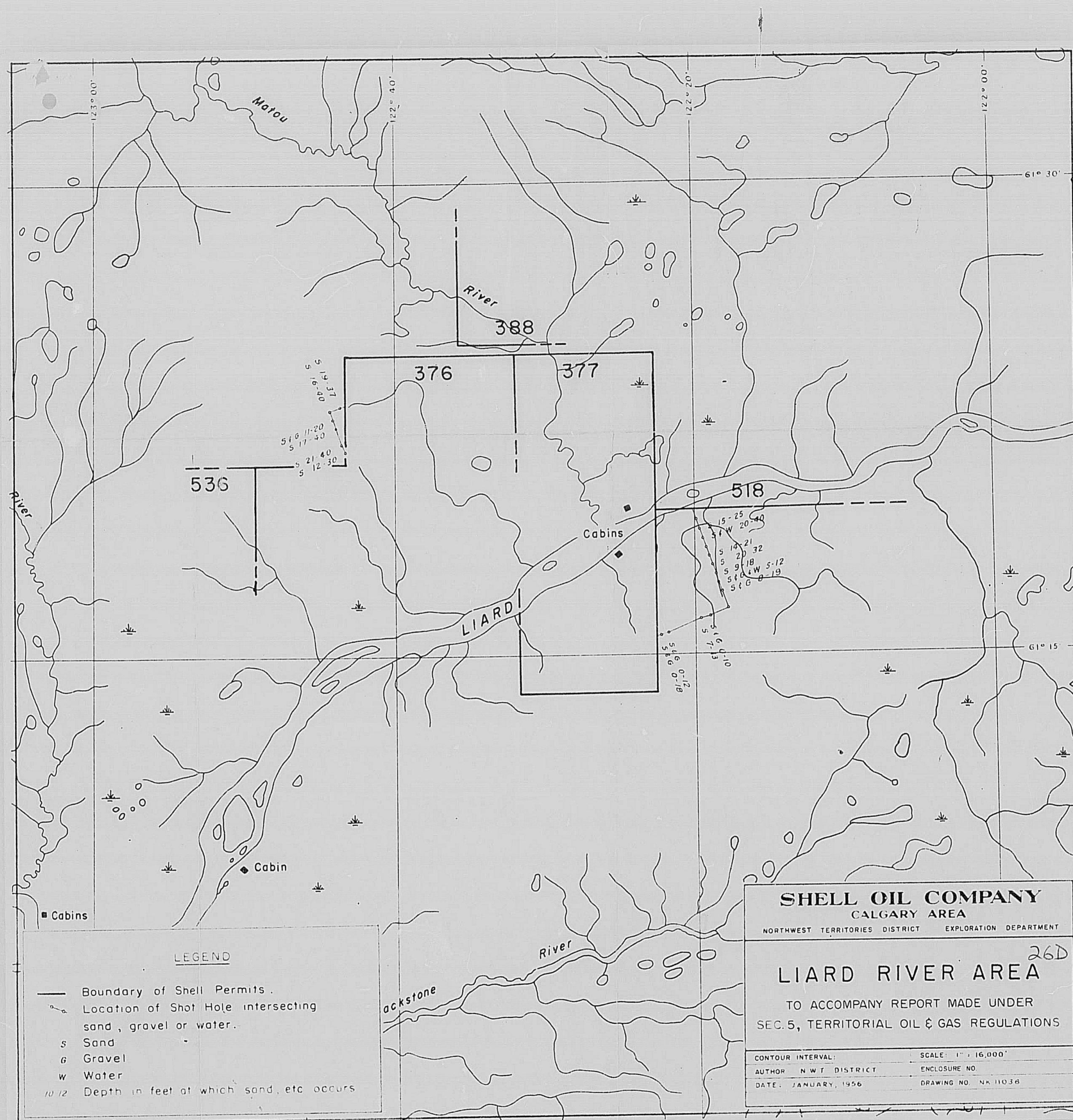
The seismic work indicated regional dips towards the southwest. Dips in the order of 1 to 5 degrees occur in the first few thousand feet below surface; dips in the order of 5 to 20 degrees in deeper strata down to depths of about 15,000 feet.

Jan. 1956.


R.A. Brown,
District Geologist
Northwest Territories District
Shell Oil Company


FEB 13 1956
DEPT. OF NORTHERN AFFAIRS & NATIONAL RESOURCES
EDMONTON, ALBERTA
Petroleum Conservation Branch
Northwest Territories & Yukon Territory





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