

EXPLORATORY DEEP TEST - CHANCE No. 1.
PEEL PLATEAU EXPLORATION LTD.
WESTERN MINERALS LTD.
OPERATOR.

CALGARY, ALBERTA.

1001 FEDERAL BUILDING
85 RICHMOND STREET WEST
TORONTO, ONTARIO

January 5, 1959

Hon. Alvin Hamilton, P.C., M.P.,
Minister of Northern Affairs and National Resources,
OTTAWA, ONTARIO.

EXPLORATORY DEEP TEST WELL
YUKON TERRITORY

Dear Sir:

In accordance with Section 23A of the Territorial Oil and Gas Regulations, we wish to make application for an exploratory deep test well in the Yukon Territory. The well is to be called Chance No. 1. We believe the attachments meet the requirements as stipulated by the regulations and as outlined in your letter addressed to the Canadian Petroleum Association of October 30, 1958.

The proposed test location is $66^{\circ} 7' 45''$ N. and $137^{\circ} 31' 40''$ W. some 160 miles north of Dawson City and 50 miles south-southeast of our Eagle Plains No. 1 suspended well. This location, being subject to ground conditions and to seismic control points, is liable to minor adjustments.

Governed by conditions encountered, the test well is expected to be drilled to a depth of approximately 6,000 ft. and at an estimated cost of \$1,000,000.

The object of this well is to penetrate the Pennsylvanian and Mississippian formations on a structural feature controlled by detailed seismic work. These formations were not present at the Eagle Plains #1 well drilled by this company some 50 miles to the Northwest and the proposed location is 750 miles from the nearest hole in Canada that has tested comparable stratigraphic intervals.

Geological reports, including maps, structural section and seismic data, are attached for your convenience and all the information contained therein is assumed to be confidential.

If time and operating conditions permit, we would plan on drilling the exploratory deep test well this year.

We would be pleased to consider any additional information that you may request with respect to this application.

Respectfully submitted,

Yours very truly,

PEEL PLATEAU EXPLORATION LIMITED



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EXPLORATORY DEEP TEST -

CHANCE NO.1

EAGLE PLAINS AREA - YUKON TERRITORY

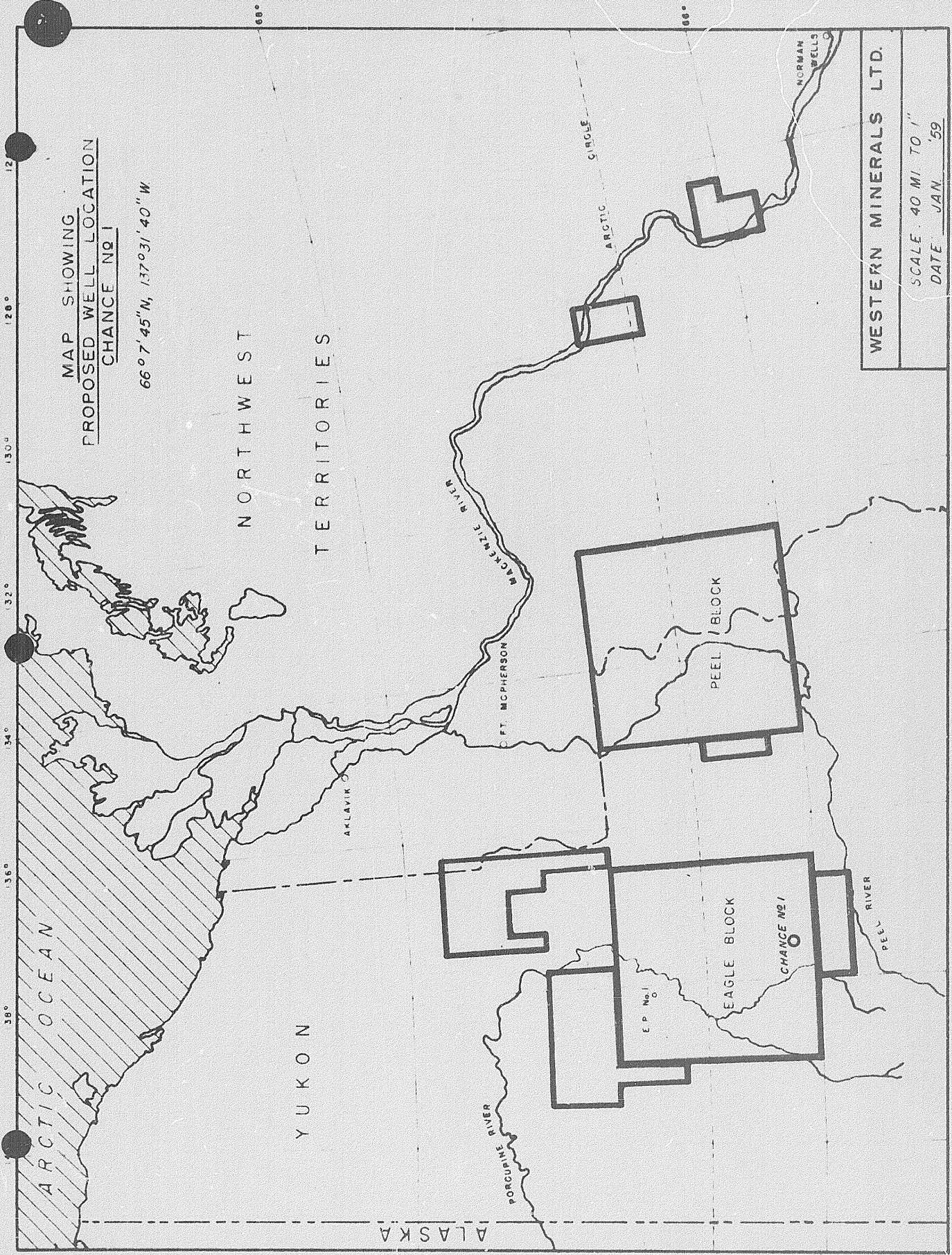
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JANUARY, 1959



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GEOLOGIC REPORT ON CHANCE No. 1 LOCATION.

Yukon Territories

By

WM. F. WEST, CALGARY, JANUARY 1959.

Location of Report Area

The subject area lies between $66^{\circ} 0'$ and $66^{\circ} 15'$ North Latitude, and is bounded on the east and west by $137^{\circ} 15'$ and $137^{\circ} 45'$ west Longitude.

Duration, Nature of Work & Mapping

This summer's field work commenced on May 11 at Chance Camp when the writer found that the cuttings from the shot holes on 'N' line were suitable for study due to the fact that compressed air was being used for bringing the cuttings to the surface.

Six days were spent in May on seismic lines H, K & P, and one later on the L line. A bagged sample from each shot hole $\frac{1}{4}$ mile apart was collected for future study. Bedrock on the Eagle Plains is covered by a thin veneer of soil, therefore each shot hole represents almost 80 feet of section. The object of this project was, chiefly, to gather data on the lithology of the formations crossed by the seismic lines, to locate any formational contacts present and to measure thicknesses of formations or units of rock within formations. This project was facilitated by utilising the helicopter to drop the writer along the lines in the morning and then return him to camp in the evening.

Between May 16 and August 14 of this year, the writer spent a total of 21 full days and 5 half days on reconnaissance and detailed studies

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in the Eagle Plains and Peel Blocks. The weather this past summer, on the whole was very favourable for field work. Rainy periods were of short duration and infrequent while the smoke hazard of 1957 was almost negligible. Helicopter availability was the main factor limiting the seasons geologic operations.

The various field projects were carried out from either Chance or Eagle Plains Camp as bases, since the helicopters were required at these camps for the ferrying of men and supplies. Gas caches at Palmer Lake, at Peel Crossing and on the Porcupine River facilitated the geologic study. Aerial photographs and a base map of the area were used on which to plot precisely the geologic stations. These were numbered simply by abbreviating the month, the date followed by W (for observer Wuest) and then the station number. For example, Ju 14, W 1, signifies July 14th, Station W 1 for that day.

G E O L O G YTABLE OF FORMATIONS, EAGLE PLAINS AREA.

<u>Formation</u>	<u>Thickness</u>	<u>Lithology</u>	<u>Descriptive Notes</u>
Recent	0 - 10 ft.	Post glacial clays, silts; river silts and gravels	
Tertiary	0 - 100 ft.	Cross-bedded sandstone, shale, basal conglomerate	Fresh and brackish water.
<u>Unconformity</u>			
Cretaceous	3000 - 5700 ft.	Upper section alternating sandstone and shale; Coalat base. Lower section shale, minor sandstone, silt.	Cretaceous thin north to south Non-Marine <u>Marine</u>
<u>Unconformity</u>			
Upper Penn- sylvanian	(cont'd)		

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TABLE OF FORMATIONS (Cont'd)

<u>Formation</u>	<u>Thickness</u>	<u>Lithology</u>	<u>Descriptive Notes</u>
Upper Pennsylvanian	0 - 1400 ft.	Alternating pebbly sandstone, sandstone beds, silts, limestone, shale.	<u>Marine & deltaic New Section</u> Sands, porous, oil stained, Excellent Reservoir beds.
<u>Unconformity</u>			
Mid and Lower Pennsylvanian	3500 ft.	Shales, silts, limestone, sandstone, conglomerate.	Peel River Rapids section <u>Marine</u>
<u>Mississippian</u>			
Mississippian	2500 ft.	Shale, limestone	<u>Bituminous Marine Source and Reservoir</u>
<u>Imperial</u>			
Imperial	4100 ft.	Shales and sandstone	<u>Marine & Non-marine</u>
<u>Disconformity</u>			
Mid Devonian	3200+ ft.	Limestone, Reef Limestone	Good porosity, <u>Marine</u> Excellent Reservoir, E.P. No. 1
<u>Unconformity</u>			
Mid Silurian	1000 ft.	Limestone, argillaceous limestone.	E.P. No. 1 section <u>Marine</u> Vuggy porosity. Reservoir.
<u>Unconformity</u>			
Upper Ordovician	2000+ ft.	Limestone, argillaceous limestone.	E.P. No. 1 Well <u>Marine</u>

Structure

The surface beds in the report area dip gently westward to within two miles west of Chance Camp. Beyond this point, slight folding of the beds can be seen to occur from the air. This folding is substantiated by the seismic work done in the report area.

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Summary

The studies carried out for the past years have located favourable surface and sub-surface structural conditions in all portions so far studied. These conditions cover prospective fold and fault structures.

Stratigraphic traps due to pinch-out of formations known to have good reservoir and source characteristics will, it is believed, be discovered. Traps for hydrocarbons may also be located in the area because of pinch-out against known unconformities in the geologic column.

The studies have also shown that there are good source beds in at least two horizons and that these horizons underlie Eagle Plains.

These potential source beds are found in the Devonian and Mississippian formations. In the former the bed is a massive coral reef which at depth to the east of the hills called 'One' and 'New', where exposures of these reefs were seen, could serve both as source and a reservoir for oil or gas. The second potential source for hydrocarbons are known massive sections of petroliferous shales and limestone in the Mississippian. These are well exposed east of 'Now' and in the core of Cathedral Rocks uplift. Potential Mississippian strata are believed to extend over the southerly portion of Eagle Plains.

Source beds older than Devonian in the Eagle Plains are not known at this time and only deep test drilling will give the answer.

Reservoir capacities are excellent in the following horizons: in the Silurian section as exposed west of 'New', in Mid Devonian, which was discovered in Eagle Plains No. 1 Well, possible Mid Devonian reservoirs in coral reefs should this condition extend under Eagle Plains, and Pennsylvanian

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sand reservoirs.

Cap rocks of adequate thickness and impermeability occur in the report area. These include the dense clay shale of the Cretaceous section.

All primary conditions usually believed to be necessary for commercial accumulation of oil and/or gas have been demonstrated to be present through the various studies in the Eagle Plains region.

Recommendations

The selection of Chance No. 1 location as a test of a structure in the report area is based on the opinion that the geologic and seismic data in hand to date are sufficient for selecting the present well site location.

Respectfully submitted



Wm. F. West
Consulting Geologist, R.P.E.

Calgary, January 1959

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GEOLOGIC MAP - CHANCE AREA

EAGLE PLAINS - YUKON TERR.

