

THE BRITISH AMERICAN OIL COMPANY LIMITED

NORTHWEST TERRITORIES OIL AND GAS

PERMITS NOS. 705 and 706

WRIGLEY PROJECT



FINAL GEOPHYSICAL REPORT

The British American Oil Company Limited Seismic Party 10 shot a total of 40.5 miles of seismic control during a working period of 30 days in August and September, 1961. Cost of this operation was \$40,994.00.

Operations Report

Wrigley Project, N.W.T.

The Wrigley Permits 705 and 706 are located approximately 15 miles west of the Townsite of Wrigley, N.W.T., between 124°00' and 124°15' west longitude and 63°10' and 63°30' north latitude. The equipment and supplies were barged from Hay River to a point eight miles north of Wrigley by Yellowknife Transportation. A surveyor and cook flew from Fort Nelson to Wrigley by Beaver on the 5th of July, and were responsible for the movement of the equipment from the Mackenzie River to the project. The remainder of the crew flew to Wrigley from Edmonton on a regularly scheduled flight by Pacific Western Airlines, on August 1st.

Topography

A gradual elevation change from approximately four hundred feet above sea level at the Mackenzie, to an average elevation of sixteen hundred feet over the project area was encountered. The terrain was quite similar to that in the Alberta foothills. The elevation over the project area varied from thirteen hundred feet to twenty-three hundred feet above sea level. Very deep creek valleys were encountered, and probably presented the biggest problem during the entire operation. A fairly dense tree cover was present over most of the area. The trees were on the average about six to ten inches in diameter, however, they were much larger than this in the vicinity of all lakes, creeks and rivers. A moss cover was present over the area. On August 1st, the permafrost was present six inches below the surface of the ground. By August 15th, after three inches of rain had fallen, the permafrost was about eighteen inches below the surface.

Line Cutting

A team of four Indians and a D-4 Caterpillar were used to cut a total of 48 miles of line. This total included an 18 mile access line from the Mackenzie River to the campsite. Each of these two methods produced about 1-1/2 miles of cutline per day. The team of Indians was more practical than the D-4. Before the three inch rain, the D-4 proved to be very successful, however, it became practically useless when the permafrost disappeared to a depth of 18" below the surface after the rain, and was returned to the Mackenzie River.

Because the Indians did not disturb the moss covering over the permafrost as much as the D-4, their line stood up much longer to Bombardier travel. It was very important to keep travel over the permafrost to a minimum. Lines which had been travelled four or five times became a sea of mud and increased travel time considerably. Where possible, the crew flew to and from work in a pontoon-equipped Beaver aircraft.

Campsite

The campsite was located on a lake in the west central area of the project. The Beaver aircraft was used exclusively to support the operation. A supply run was made once a week to Fort Simpson or Hay River for supplies. Several runs a week were made to Wrigley Townsite, but the stock of supplies at the local Hudson's Bay store was very limited. Powder, caps and gasoline were stockpiled near the campsite area. The powder and 1200 gallons of gasoline was transported to the campsite by bombardier. The seismocaps and the remainder of the gasoline was transported by Beaver.

Communications

The telegram was the only means of communications between Wrigley and Calgary. Two AD-10 radios were used as a means of communications between camp and the radio operator at the Wrigley Airport. In general, communications with Calgary was a very slow process.

Seismic Operations

Drilling

A Mahew 500 drill mounted on a tandem Bombardier was used exclusively. This drill was equipped with a Gardner-Denver air compressor, and a water injection system. 3-7/8" and 4-1/4" Gruner air rock bits were used. The medium formation bit was used almost exclusively, however, some hard formation bits were used.

In most areas, a hard limestone formation existed about ten feet

below the surface. When this situation existed, air drilling proved to be most successful. When the clay overburden exceeded 30 feet, water drilling was most successful. An average of five holes were drilled per shift.

Total holes drilled - 78

Average Depth - 60 feet.

Instrumentation

Amplifier Model - Gulf '57.

Recording Medium - SIE AM Tape

Shotpoint Spacing - Reflection - 2640 feet
Refraction - 3520 feet

Group Spacing - Reflection - 60 feet
Refraction - 240 feet

No. of detectors per group - Reflection - 4
Refraction - 1

Charge size - Reflection - 10 to 50 pounds
Refraction - 100 to 200 pounds

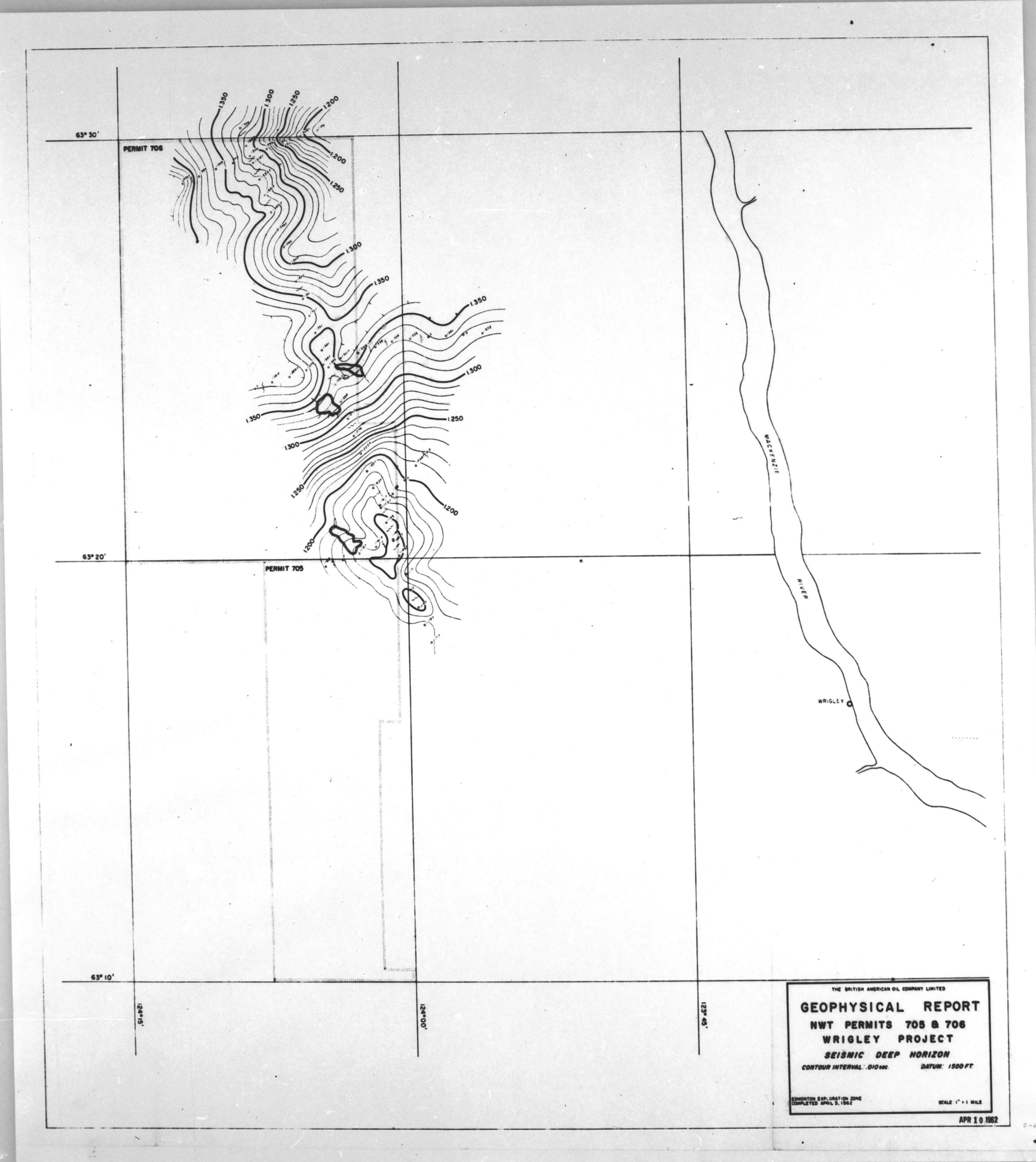
Total powder used - 4650 pounds.

James G. Murray

Attachs.

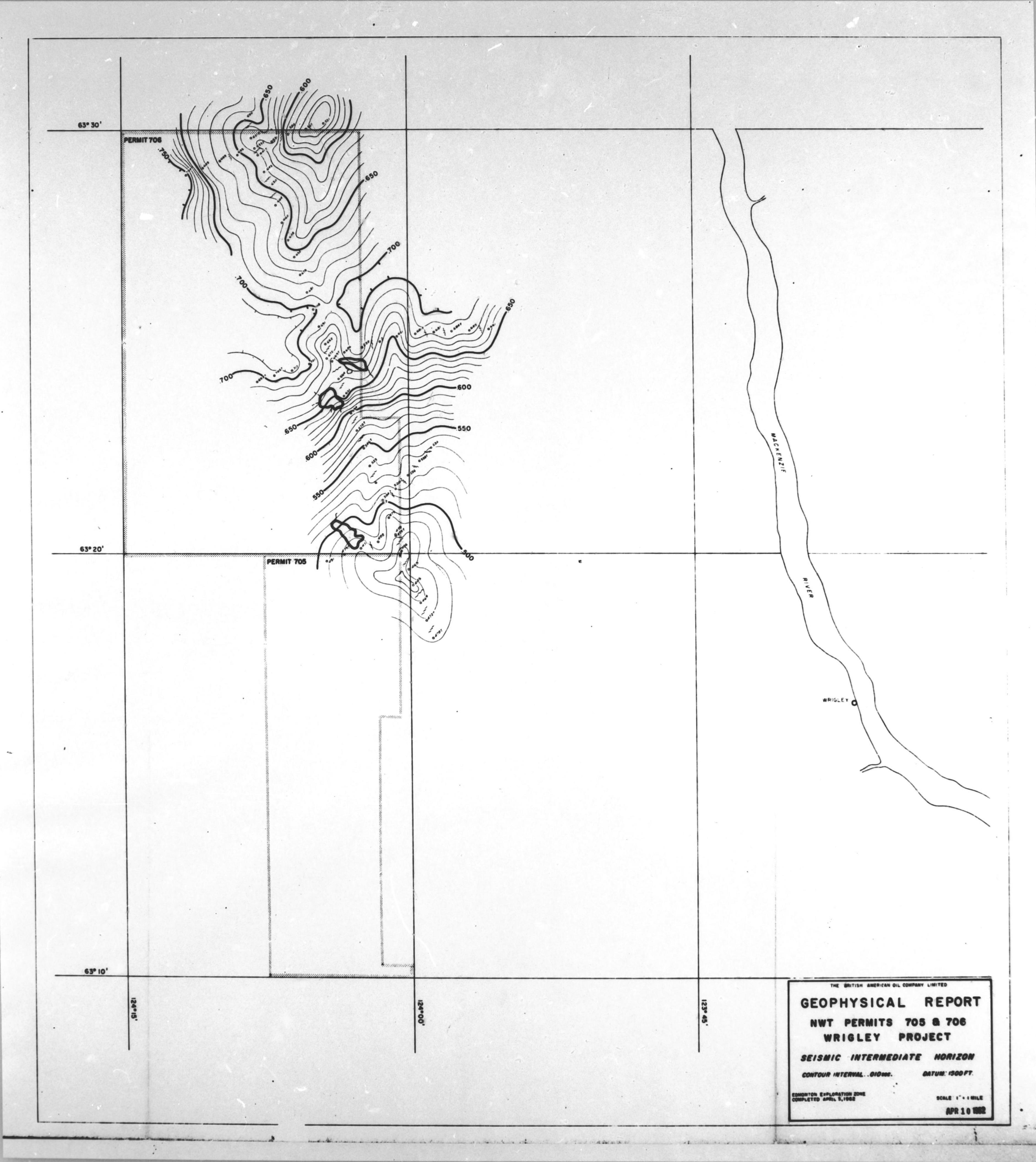
- 1) Surface Elevations
- 2) Seismic Intermediate Horizon
- 3) Seismic Deep Horizon
- 4) Seismic Interval between Intermediate and Deep Horizons





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West Canadian Graphic Industries Ltd.



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