

REPORT OF EXPLORATION ON NORMAN WELLS AREA
PERMITS 782, 795 and 797

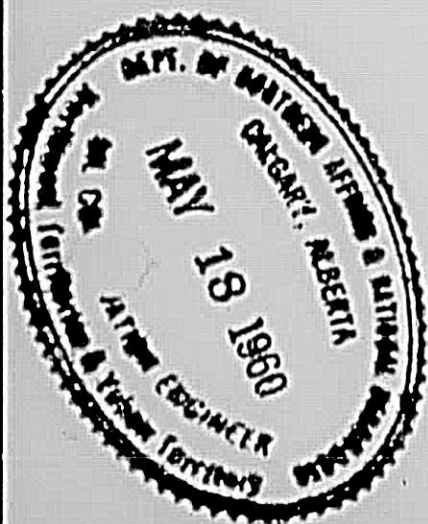
The following report is in fulfillment of Section 29 of the Territorial Oil and Gas Regulations.

- 29 (a) No aerial photographs were taken of the subject permits or the surrounding area.
- 29 (b) The permit area and the surrounding region are underlain chiefly by sedimentary rocks of Upper Devonian age. The northwest-southeast trending Imperial anticline exposes pre-Devonian Ronning beds. To the west of the permits the Canyon Ranges expose sediments as old as Cambrian and possibly Precambrian and east of the permits the Franklin Mountains expose a section down to and including the pre-Devonian Ronning. With the exception of the Imperial anticline the sediments between the Franklin Mountains and the Canyon Ranges are nearly flat lying or only gently folded, outcrop data mapped to date are insufficient to delineate structures.

The sedimentary column in this area is known only from surface exposures on the Imperial anticline and from the Canyon Ranges and Franklin Mountains some distance from the permit area, and from wells previously drilled in this general area.

Cretaceous:- Shales with siltstones, sandstones and, in some places, a basal conglomerate. These sediments are generally grey in color, marine to brackish, sparsely fossiliferous and generally with gentle dips. The maximum thickness is probably in the order of 6,000 to 8,000'.

Upper Devonian Imperial Group:- Soft, dark colored, greenish-grey and grey shales; dark argillaceous, calcareous siltstones and grey, thin, sandy fossiliferous limestones. The total thickness ranges up to 3,000'.



Middle Devonian Fort Creek Shale:- Dark brown to black shales with a dark brown streak, bituminous and thick bedded. Some dark grey, non-bituminous shales. In some areas a carbonate unit (Kee Scarp) is present within the Fort Creek shales. The basal Kee Scarp limestones are bedded whereas the upper part of the unit contains coral, and stromatoporoid reef material and large amounts of detrital material derived from reefs. The total thickness of the Fort Creek varies from 400 to 1,000'.

Middle Devonian Ramparts Formation:- The Ramparts limestones are grey to dark grey, shaly in part, thick bedded, massive and fossiliferous. Thicknesses range from 300 to 500'.

Bear Rock Formation:- In the Norman Wells area this unit consists primarily of brecciated dolomite and/or limestone with minor amounts of gypsum and anhydrite. Some of the carbonates are thick bedded, many of the brecciated zones show little indication of bedding. Porosity is fairly common and ranges up to cavernous. In this area thicknesses range up to 1,000'.

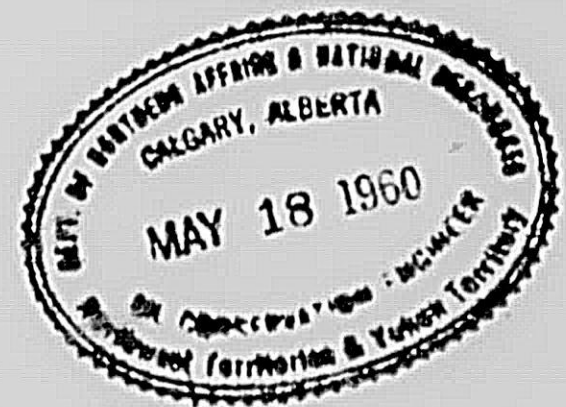
Silurian & Ordovician Ronning Group:- This unit includes the probable equivalents of the Mount Kindle and Franklin Mountain formations. The unit consists of light grey to brown, well bedded dolomites and limestones. These carbonates are cherty in part and are fossiliferous in the upper portion of the section.

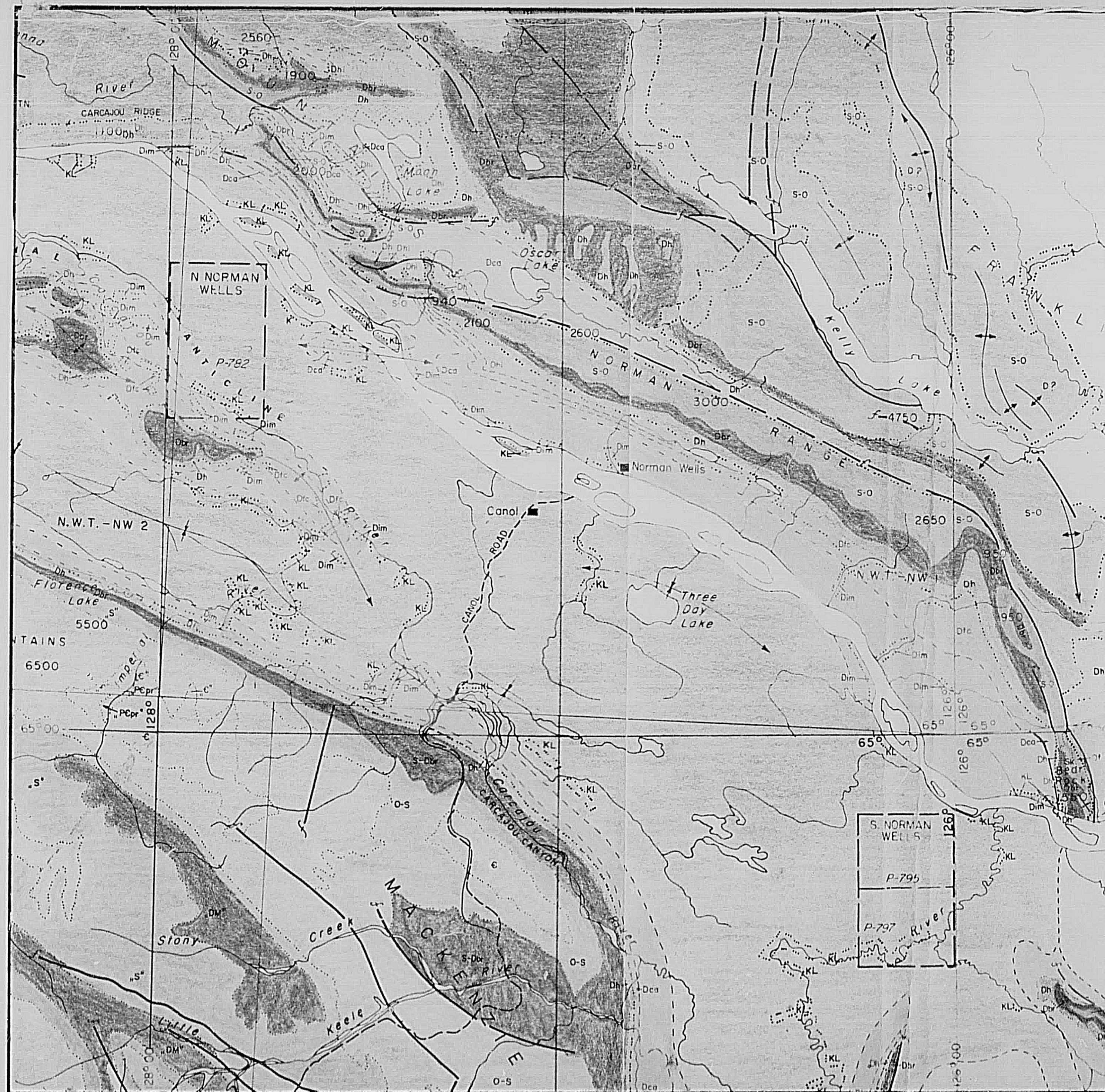
Cambrian-Precambrian:- Consists of red, green and grey shales and sandstones with some limestones, and with an evaporite section up to 2,000' in thickness in the upper part. The base of the section is not exposed, but the thickness of sediments is probably in excess of 8,000'.

- 29 (c) (i) A gravity survey was not made.
- (ii) A seismic survey was not made.
- (iii) A magnetic survey was carried out on and in the immediate vicinity of the subject permits, and a map is submitted showing the results of the survey.

May 12, 1960

B. Veale

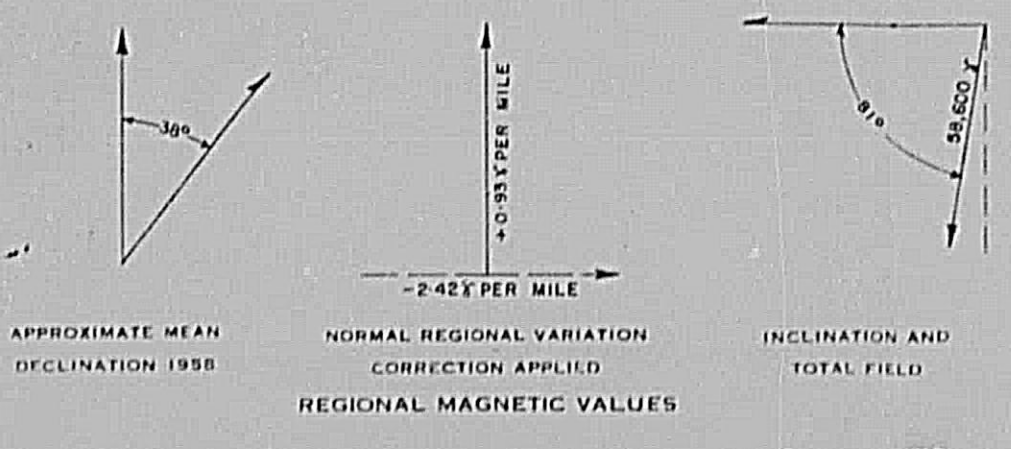
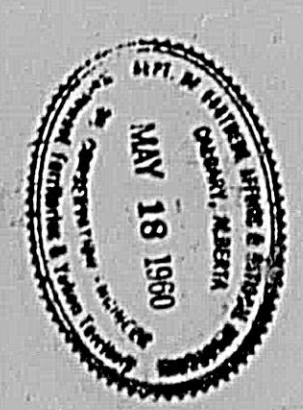
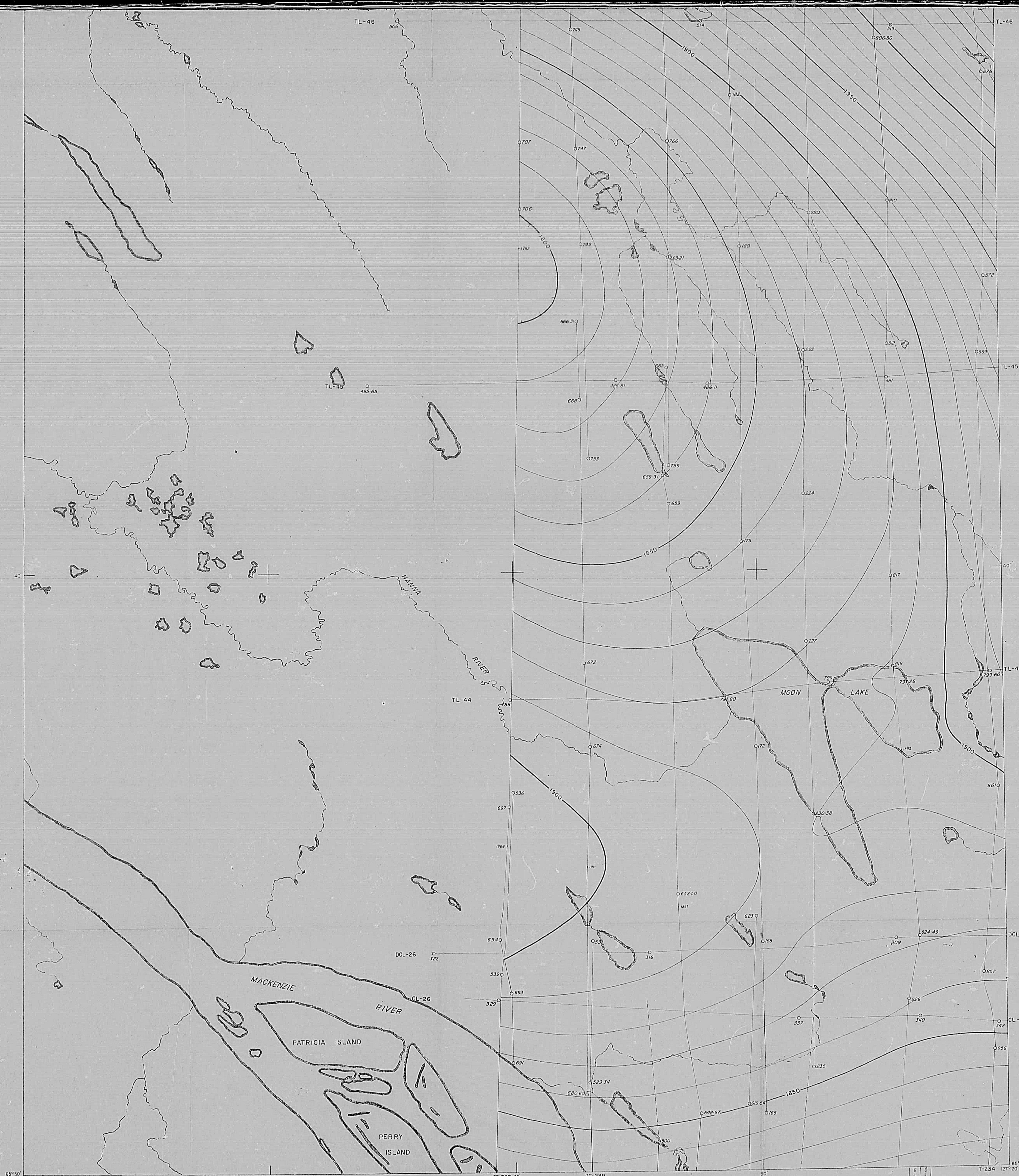




LEGEND

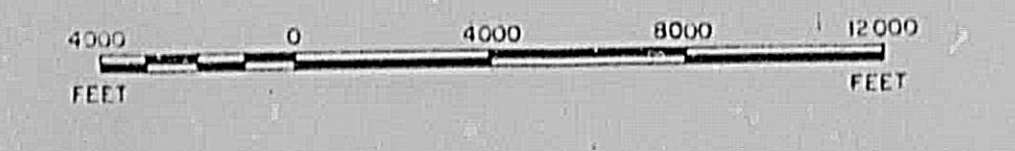
- Tertiary
- Cretaceous (Undifferentiated) - K
- Upper Devonian-Imperial - Dim
- Middle Devonian-Fort Creek - Dca, Dhi, Dfc
- Middle Devonian-Ramparts - Dh
- Bear Rock - Dbr
- Silurian plus Ordovician - S, Sk, O, Of
- Cambrian plus Precambrian - E, PE, E-PE

SHELL OIL COMPANY OF CANADA, LIMITED		EXPLOR. & PROD. DEPT.	NORTHERN EXPLORATION DIV.
1:500,000 GEOLOGICAL COMPILATION <u>NORMAN WELLS AREA</u>			
CONTOUR INT.		SCALE: 1:500,000	
Section Geological	Date April 29, 1960		
Author N.W.T. District	Enclosure No.		
	Drawing No. ZM-20		
To Accompany Report to Gov't, Section 30, Oil and Gas Regulations, April, 1960.			



HORIZONTAL CONTROL BASED ON PLANNED MAPS COMPILED BY CANADIAN AERO SERVICE LIMITED. ALSO PRELIMINARY TOPOGRAPHIC MAPS, PUBLISHED BY THE DEPARTMENT OF MINES AND TECHNICAL SURVEY, OTTAWA.

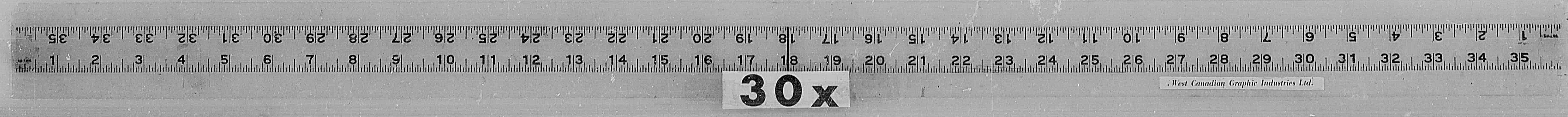
AIRBORNE MAGNETOMETER SURVEY
TOTAL MAGNETIC INTENSITY MAP
NORTHWEST TERRITORIES PLAINS
SHELL OIL COMPANY OF CANADA LIMITED

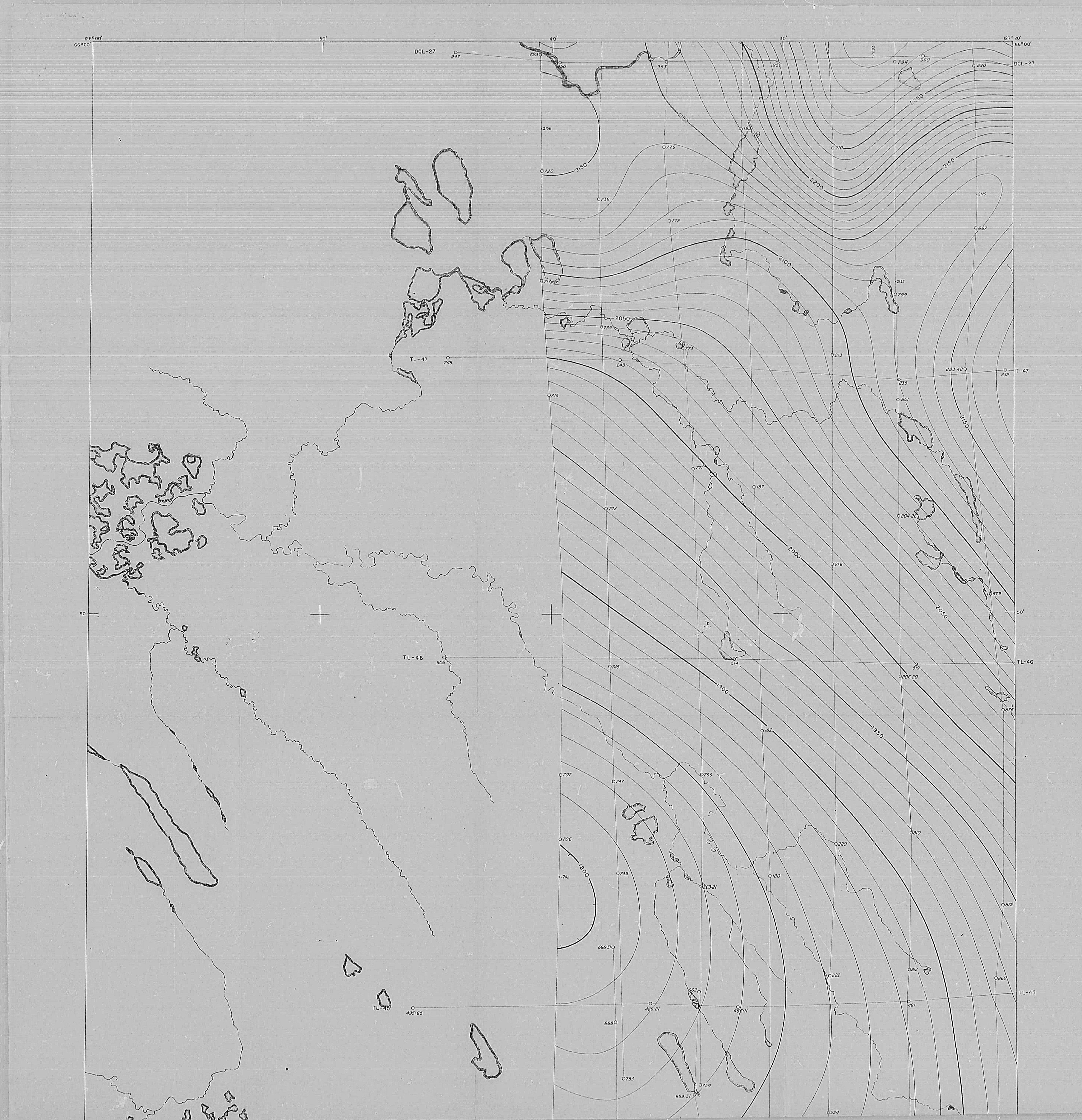


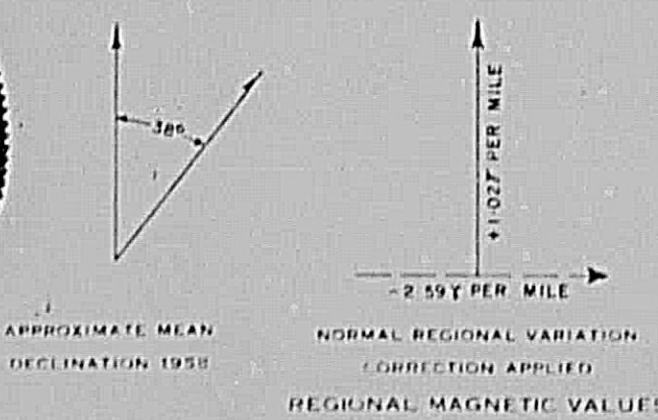
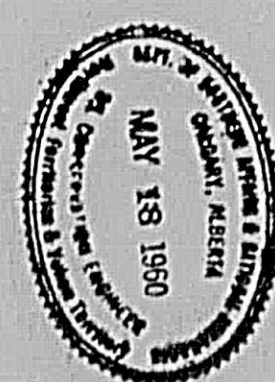
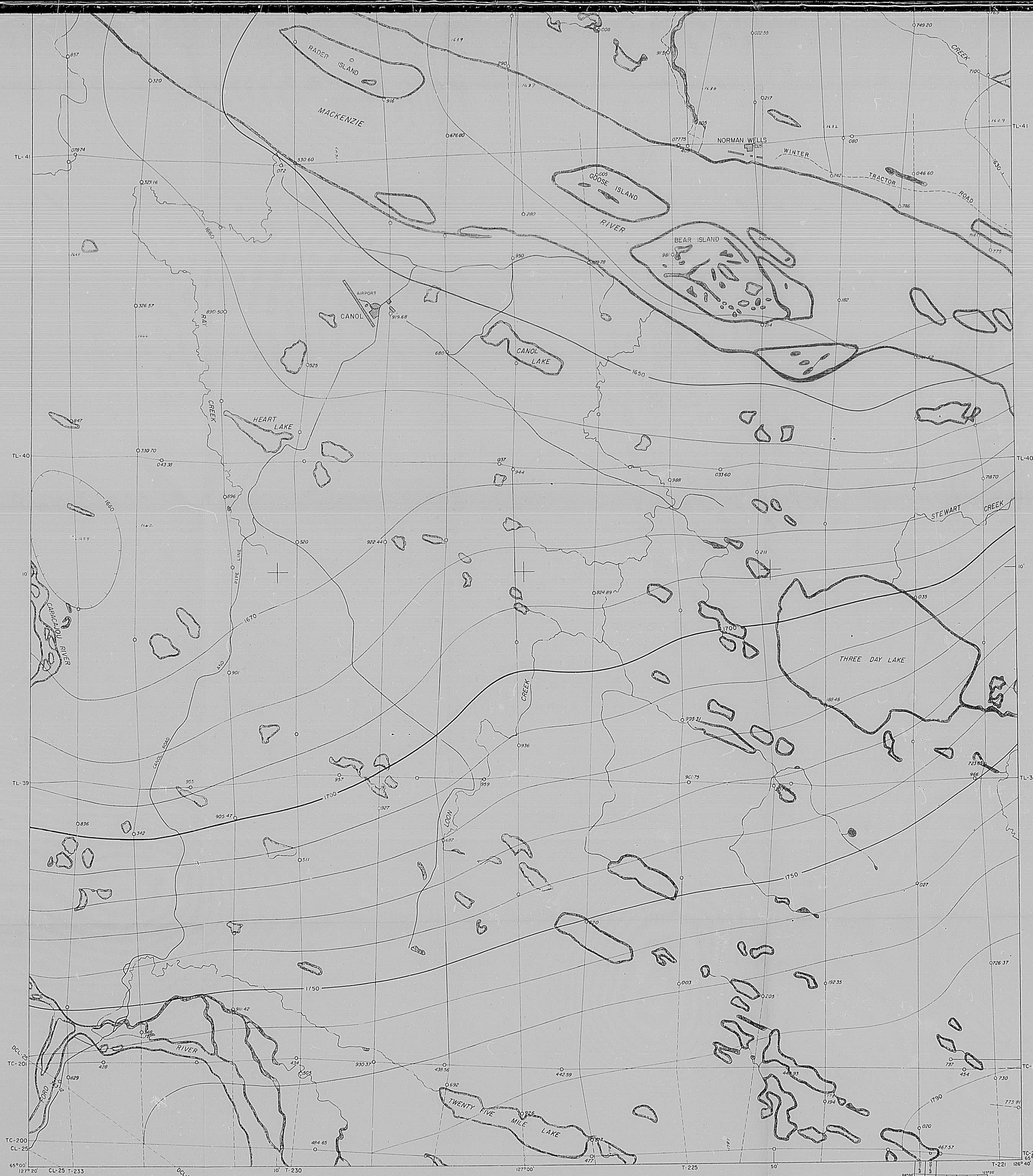
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TRANSVERSE INTERVAL 1.5 MILES
CONTROL LINE INTERVAL 6 MILES
CONTOUR INTERVAL 10 FATHOMS
BASE INTENSITY ARBITRARY

SHELL OIL COMPANY OF CANADA LIMITED		EXPLOR. & PROD. DEPT.	NORTHERN EXPLORATION DIV.
37-5-9		NORMAN WELLS AREA	
SHOWING		TOTAL MAGNETIC INTENSITY	
CONTOUR INT. 10 FATHOMS		SCALE: 1" = 4000	
SHEET NO. 37-5-9		DATE MAY 3, 1960	
AUTHOR: N.W.T. DISTRICT		ENGINEER: M.L.	
DRAWING NO.		CHECKED BY:	
TO ACCOMPANY GOVERNMENT REPORT: NORMAN WELLS AREA			

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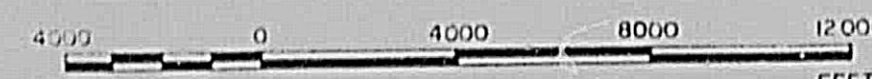






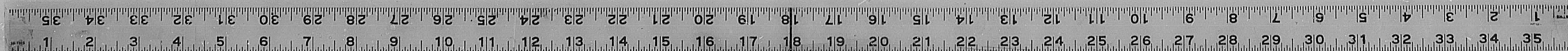
HORIZONTAL CONTROL BASED ON
PLANIMETRIC MAPS COMPILED BY CANADIAN
AERO SERVICE LIMITED. ALSO PRELIMINARY
TOPOGRAPHIC MAPS PUBLISHED BY THE DE-
PARTMENT OF MINES AND TECHNICAL SURVEYS,
OTTAWA.

AIRBORNE MAGNETOMETER SURVEY
TOTAL MAGNETIC INTENSITY MAP
NORTHWEST TERRITORIES PLAINS
SHELL OIL COMPANY OF CANADA LIMITED



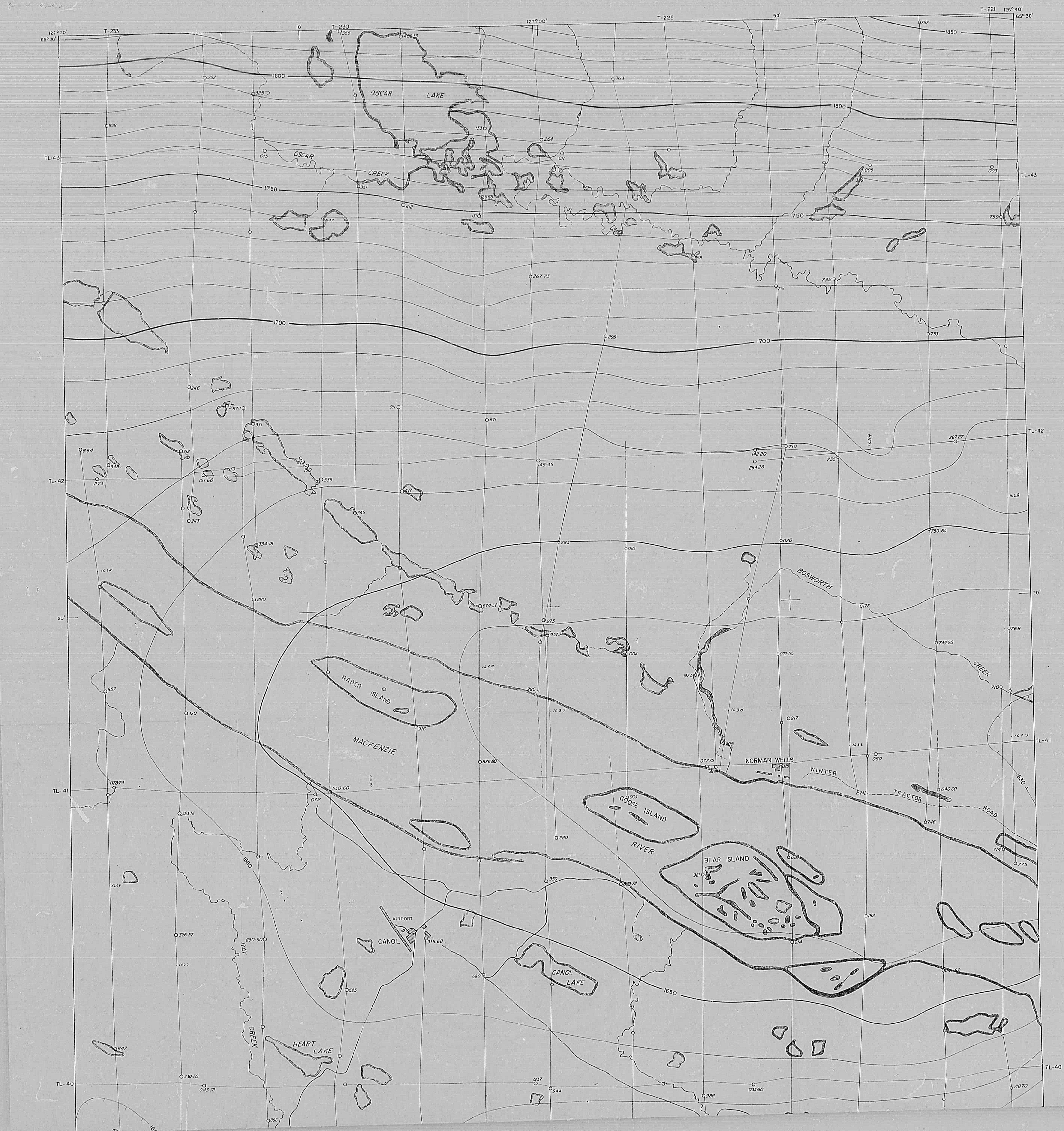
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CONTROL LINE INTERVAL 0.5 MILES
CONTOUR INTERVAL 50 METERS
BASE INTENSITY ARBITRARY

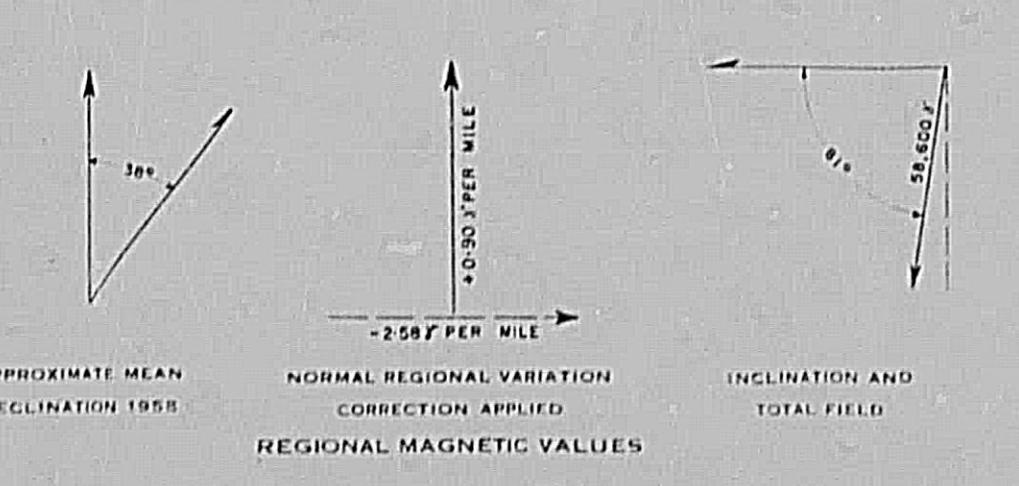
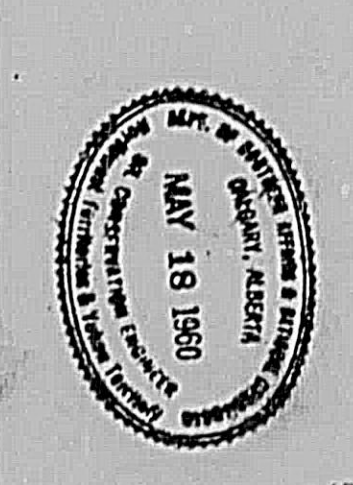
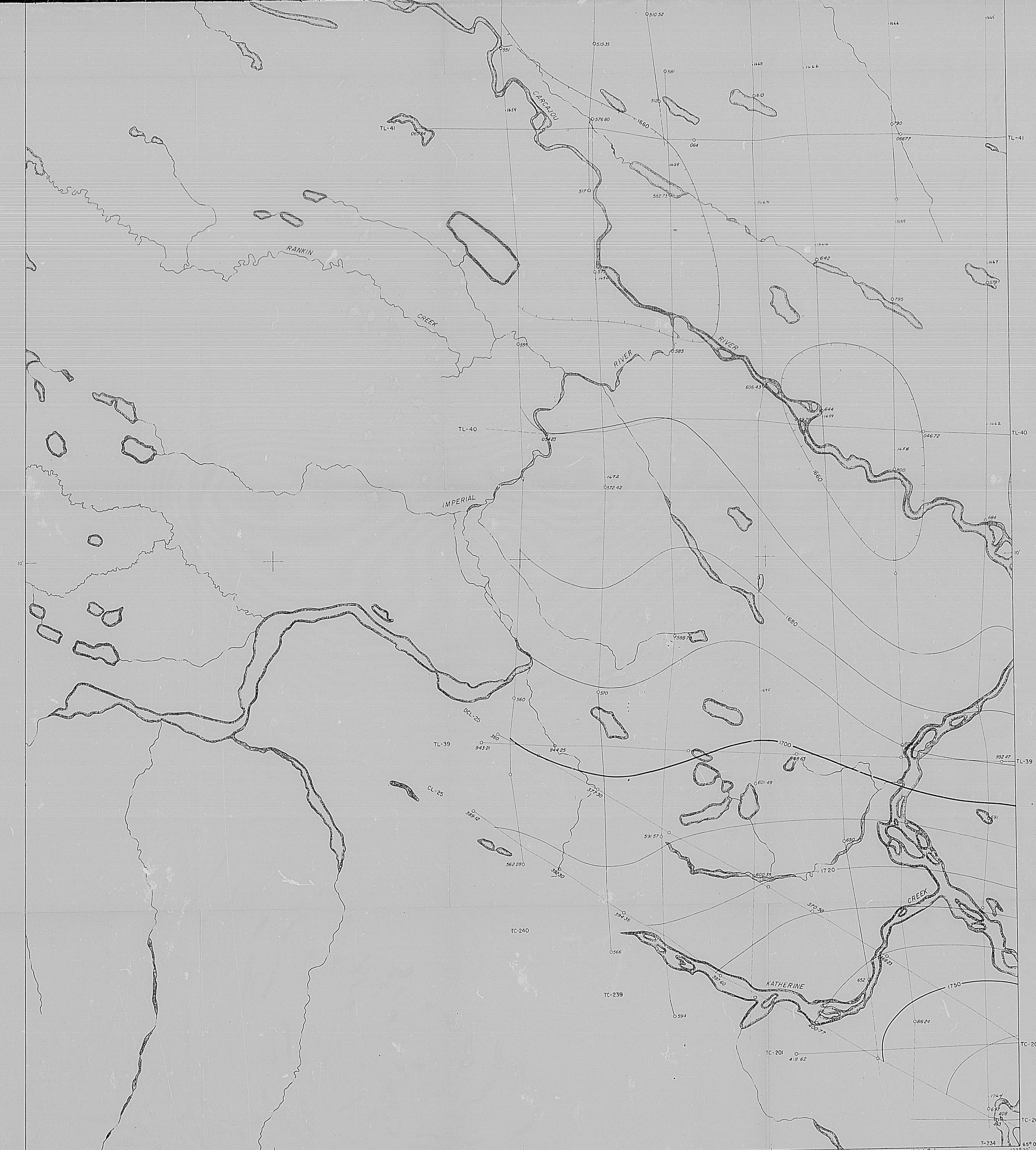
SHELL OIL COMPANY OF CANADA LIMITED		EXPLOR. & PROD. DEPT.	NORTHERN DEVELOPMENT DIV.
37-1-5-7			
NORMAN WELLS AREA			
SHOWING			
TOTAL MAGNETIC INTENSITY			
CONTOUR INTERVAL 50 METERS		SCALE 1" = 4000'	
SHEET NO. 37-1-5-7		DATE MAY 3, 1960	
AUTHOR: N.W.T. DISTRICT		DRAWING NO.	
TO ACCOMPANY GOVERNMENT REPORT, NORMAN WELLS AREA			



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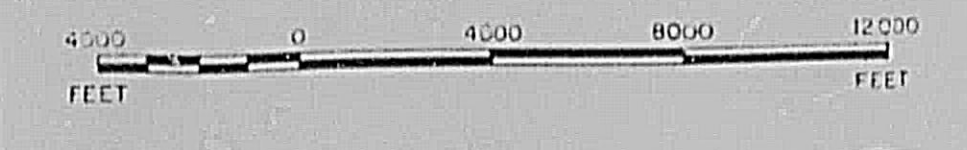
West Canadian Graphic Industries Ltd.





HORIZONTAL CONTROL BASED ON
PLANIMETRIC MAPS COMPILED BY CANADIAN
AERO SERVICE LIMITED. ALSO PRELIMINARY
TOPOGRAPHIC MAPS PUBLISHED BY THE DE-
PARTMENT OF MINES AND TECHNICAL SURVEYS,
OTTAWA.

AIRBORNE MAGNETOMETER SURVEY
TOTAL MAGNETIC INTENSITY MAP
NORTHWEST TERRITORIES PLAINS
SHELL OIL COMPANY OF CANADA LIMITED

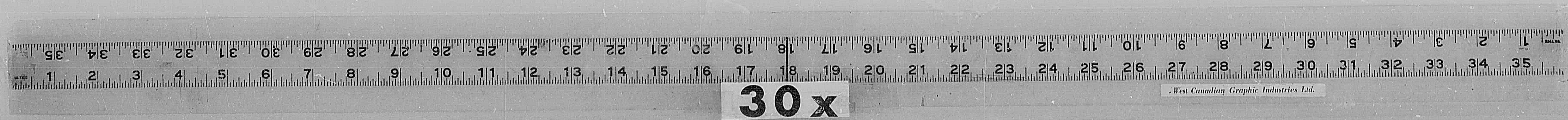
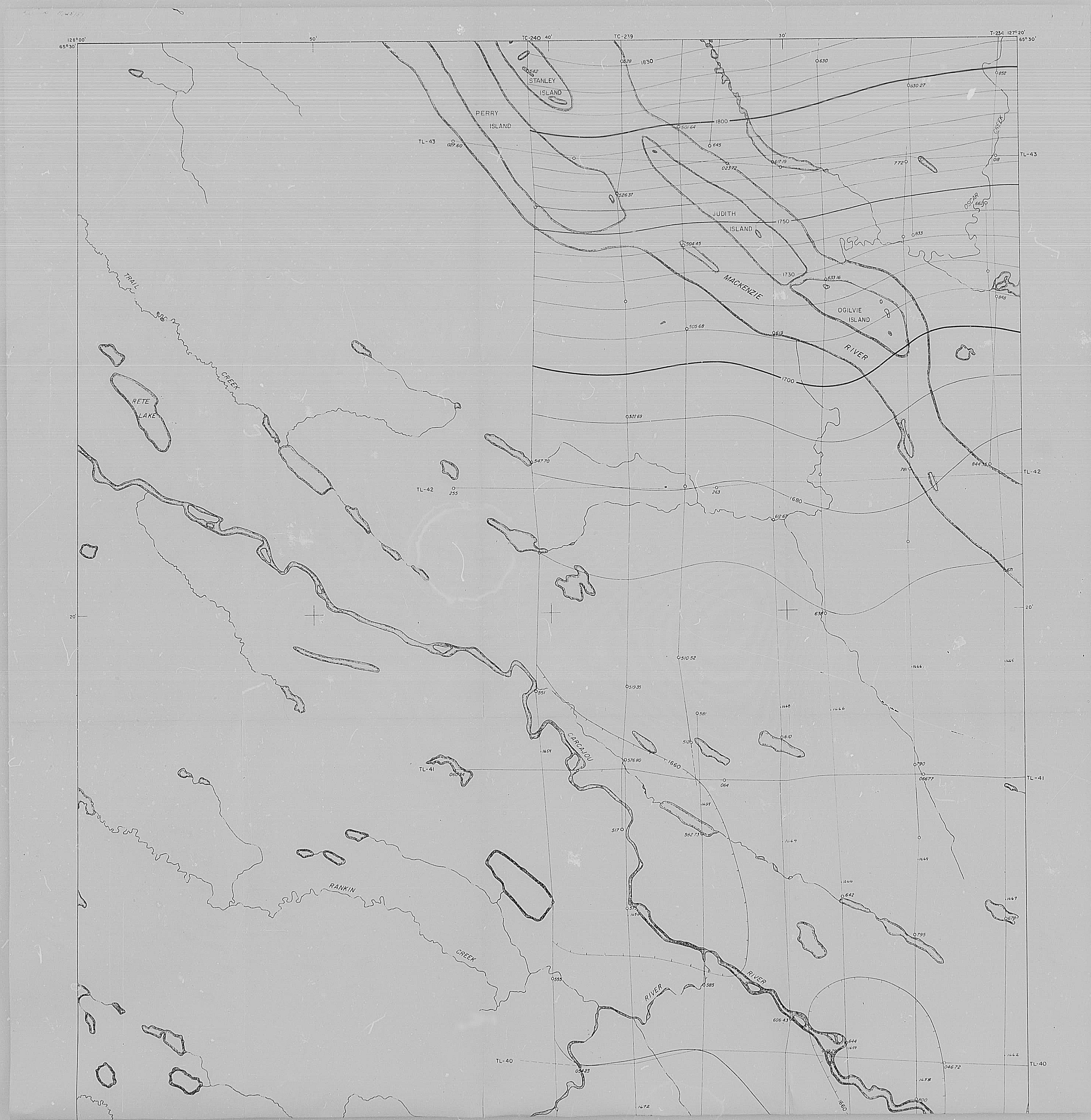


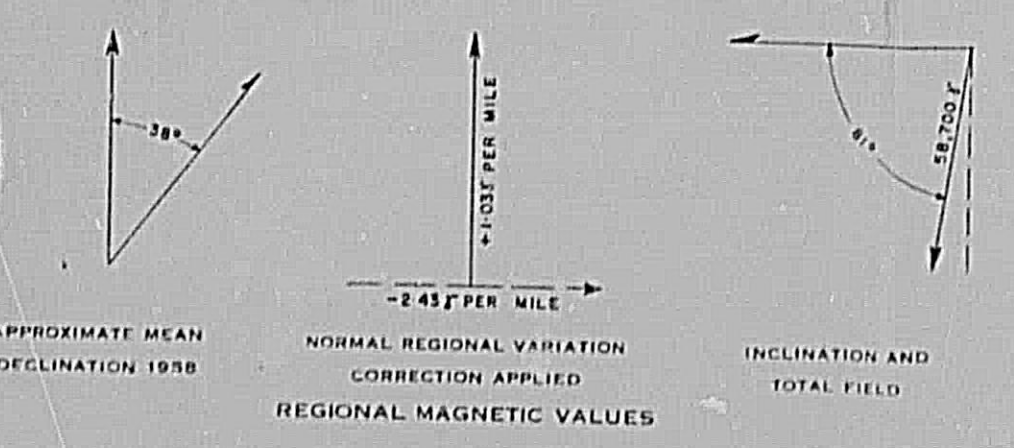
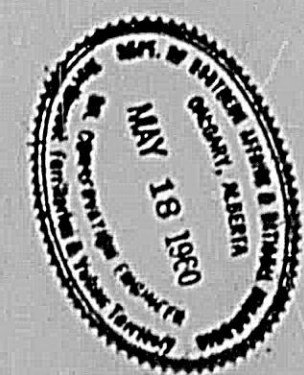
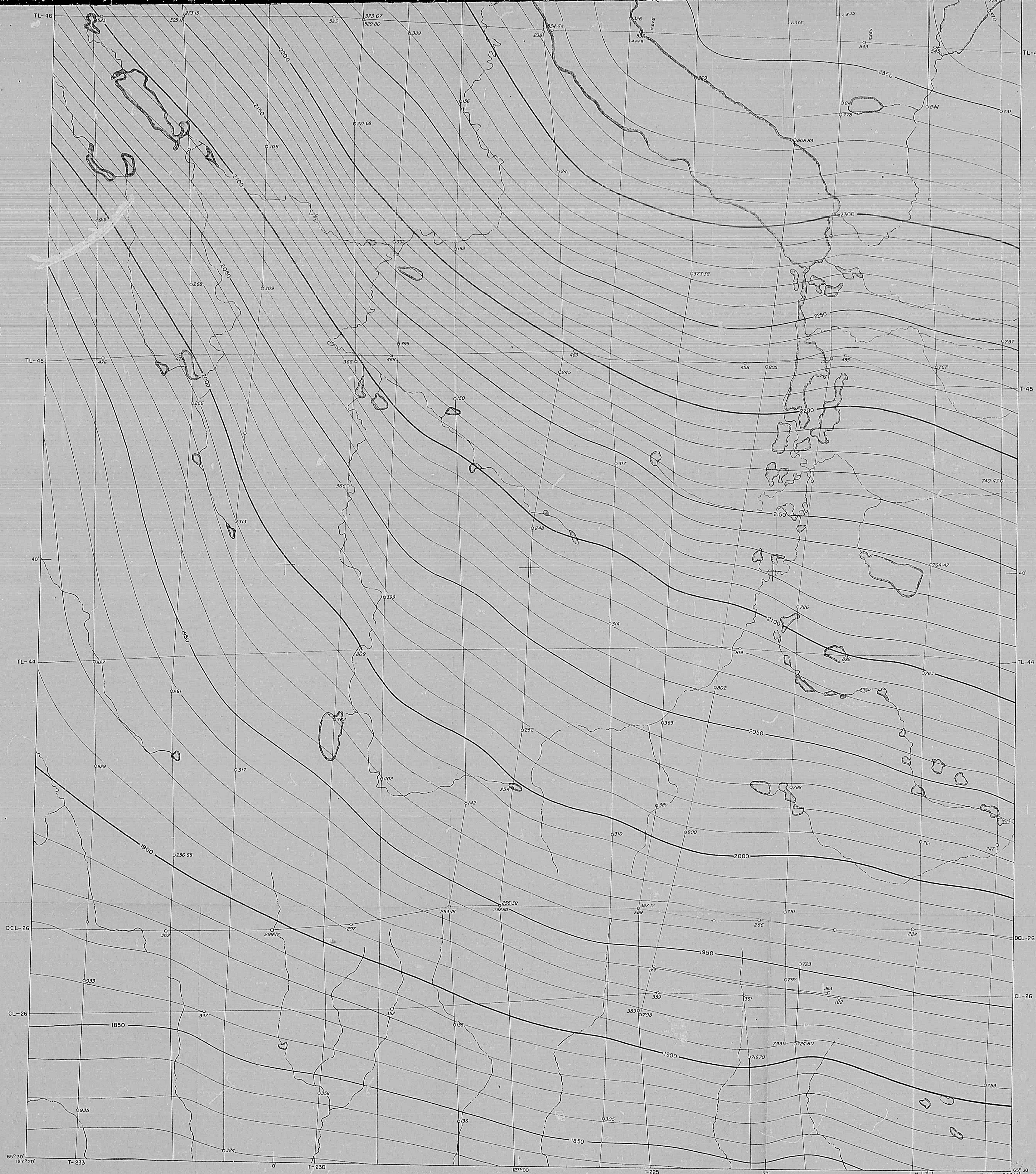
FLIGHT ALTITUDE 3500 FEET A.S.L.
TRAVERSE INTERVAL 1.5 MILES
CONTROL LINE INTERVAL 0 MILES
CONTOUR INTERVAL TO CANADA
ARBITRARY

SHELL OIL COMPANY OF CANADA LIMITED	EXPLOR. & PROD. DEPT.	NORTHERN EXPLORATION
37-1-5-7		
NORMAN WELLS AREA		
SHOWING		
TOTAL MAGNETIC INTENSITY		
CONTOUR INT. 10 GAMMA	SCALE 1" = 4000'	
Sheet No. 37-1-5-7	DATE MAY 3, 1960	
Author: J. W. GIBSON	Checked: M. J.	
Drawing No.		
TO: ACCOMPANY GOVERNMENT REPORT, NORMAN WELLS AREA		



30x





HORIZONTAL CONTROL BASED ON PLAINMETRIC MAPS COMPILED BY CANADIAN AERO SERVICE LIMITED. ALSO PRELIMINARY TOPOGRAPHIC MAPS PUBLISHED BY THE DEPARTMENT OF MINES AND TECHNICAL SURVEYS OTTAWA.

AIRBORNE MAGNETOMETER SURVEY
TOTAL MAGNETIC INTENSITY MAP
NORTHWEST TERRITORIES PLAINS
SHELL OIL COMPANY OF CANADA LIMITED

FLIGHT ALTITUDE 3500 FEET A.S.L.
TRAVERSE INTERVAL 1.5 MILES
CONTROL LINE INTERVAL 5 MILES
CONTOUR INTERVAL 10 GAMMAS
BASE INTENSITY ARBITRARY

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SHELL OIL COMPANY OF CANADA LIMITED		EXPLO. & PROD. DEPT.		NORTHWEST TERRITORIES DIV.	
32-1-5-9		NORMAN WELLS AREA			
SHOWING TOTAL MAGNETIC INTENSITY					
CONTROLLER: J. D. BARRA		SCALE: 1" = 4000'			
DRAWN: J. D. BARRA		DATE: MAR. 2, 1950			
CHECKED: J. D. BARRA		DATE: MAR. 2, 1950			
APPROVED: J. D. BARRA		DATE: MAR. 2, 1950			
TO ACCOMPANY GOVERNMENT REPORT, NORMAN WELLS AREA					



