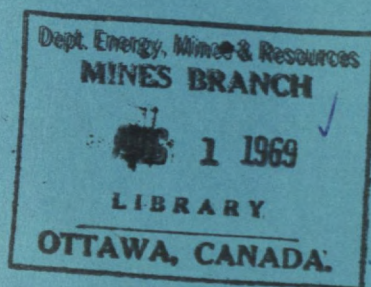


MINES BRANCH
DEPARTMENT OF MINES
OTTAWA - CANADA

SUMMARY REPORT OF ANALYSES OF NATURAL GAS
FROM TURNER VALLEY FIELD IN ALBERTA



Memorandum Series
No. 43
December, 1930

This document was produced
by scanning the original publication.

Ce document est le produit d'une
numérisation par balayage
de la publication originale.

622(06)
6212

MINES BRANCH
DEPARTMENT OF MINES, OTTAWA, CANADA

Memorandum Series December, 1930 Number 43

MINES BRANCH
DEPARTMENT OF MINES
OTTAWA - CANADA

SUMMARY REPORT OF ANALYSES OF NATURAL GAS
FROM TURNER VALLEY FIELD IN ALBERTA

Division of Natural Gas
Attention: Turner Valley Field in the Province of Alberta
Field in Alberta. The purpose of the work was to assist in the conservation and more efficient utilization of this valuable fuel. It is obvious from the preliminary the composition of the gas that it is not as exactly as possible. Since sufficient data was not available an effort was made to obtain a sample hope that it would suggest methods for the recovery of crude naphtha from the gas and a way for utilization of the residue and other products. Locating samples of the gas from the Turner Valley Field.

Memorandum Series
No. 43
December, 1930

MINES BRANCH

LIBRARY

MINES BRANCH

DEPARTMENT OF MINES, OTTAWA, CANADA

Memorandum Series December, 1930 Number 43

SUMMARY REPORT OF ANALYSES OF NATURAL GAS
FROM TURNER VALLEY FIELD IN ALBERTA

By

P. V. ROSEWARNE*

During the past two years the Fuel Testing Division of the Mines Branch has conducted investigations on natural gas produced in Canada, special attention having been devoted to the Turner Valley Field in Alberta. The purpose of the work was to assist in the conservation and more efficient utilization of this valuable fuel. It is obvious that as a preliminary the composition of the gas must be known as exactly as possible. Since sufficient data was not available an effort was made to obtain it in the hope that it would suggest methods for increasing the recovery of crude naphtha from the gas and point the way for utilization of the surplus gas in other directions. Accordingly, samples of gas from this field

* Engineer i/c Oils and Natural Gas Section, Fuel Research Laboratories, Ottawa.

were obtained and subjected to fractional distillation in a special Podbielniak apparatus in order to determine the relative amounts of methane, ethane, propane, butane, pentane and higher hydrocarbons present. A representative portion of each sample was reserved for additional determinations to show the specific gravity and the percentages of helium, carbon dioxide, oxygen and nitrogen present. Some samples of crude naphtha and of "stabilizer gas" were also taken and analyzed. The sulphur present in the gas is the subject of a special investigation, the results of which will be reported separately.

The writer received valuable assistance from the various oil and gas companies operating in the field as well as from other government departments, both provincial and federal. The Royalite Oil Company, the faculty of the Provincial Institute of Technology at Calgary, and the staff of the Supervisory Mining Engineer, both in Ottawa and in Calgary, deserve special mention, and their hearty co-operation at all times is gratefully acknowledged.

This report is intended to serve as an interim report in order that some of the results obtained during the present year may be available to the many who are interested in the work. For that reason, only the briefest of descriptions and comments are included. Additional tests and determinations are being made as rapidly as possible at the Fuel Research Laboratories, and complete reports of the work done will follow in due course.

The summarized results of analyses are shown in tabular form below. Where not otherwise described, the samples were taken by ordinary water displacement from the pipeline near the well after the gas had passed through the separators. The separators are cylindrical units used for removing crude naphtha from the gas prior to its being purified for use as city gas or going to waste as surplus gas.

The "stabilizer gas" is that given off by the crude condensate from the separators when the condensate is being "conditioned" or "stabilized" before shipment to the refineries. The samples of stabilizer gas are not necessarily representative of the operation and therefore no conclusions of a definite nature should be drawn from the results of analysis shown in this report. The composition of this gas will naturally vary according to the composition of the crude condensate being treated; the method of operation of the unit; the amount of throughput; and probably on several other factors that have not been investigated so far.

The results shown in the table were obtained in all cases from the analysis of a single sample, except in the case of gas from the Royalite well #19, and the purified gas from Calgary city mains. The results shown in these two cases are the average of three and seven analyses respectively. All of these analyses agreed closely with the average given. The values shown in the table are based on percentage by volume in all cases. That shown for methane includes the percentage of all other gases present whose boiling point is near or below that of methane.

4.

That shown for pentanes includes all hydrocarbons whose boiling points are higher than that of pentane. All of the samples shown were taken and analyzed during 1930, except the three taken in 1929 that are so indicated and are included in the table for purposes of comparison.

ANALYSES OF NATURAL GAS FROM TURNER VALLEY FIELD IN ALBERTA

Name of well or description of sample	Date sample taken	Helium %	Methane		Ethane %	Propane %	Butanes	Pentanes	
			Plus					Plus	
			%					%	
Advance No. 5A	Sept. 4, 1930	0.007	87.2		6.6	3.7	1.7	0.8	
Associated No. 1	Sept. 8, "	0.007	88.4		6.4	3.4	1.3	0.5	
British Dominion No. 3	Oct. 22, "	0.008	--		--	--	--	--	
Calmont No. 2	Sept. 17, "	0.008	88.2		6.0	3.4	1.7	0.7	
Dalhousie No. 5	Sept. 6, "	0.009	85.0		7.4	3.8	2.1	1.7	
" No. 7	Aug. 20, "	0.010	87.4		6.6	3.6	1.4	1.1	
Foothills No. 1	Aug. 16, "	Trace	88.7		5.7	3.3	1.5	0.9	
" No. 3	Aug. 17, "	0.009	89.0		4.8	3.6	1.8	0.8	
Home No. 1	Aug. 11, "	Trace	88.9		6.3	3.2	1.2	0.5	
" No. 3	Sept. --, "	0.008	87.6		6.8	3.3	1.6	0.7	
Lowery No. 1	Aug. 22, "	0.008	88.3		5.4	4.0	1.6	0.7	
Mayland No. 1	Sept. 2, "	0.010	87.0		7.0	3.5	1.7	0.9	
McDougall-Segur No. 2	Aug. 27, "	0.007	87.2		7.3	3.4	1.4	0.7	
" " No. 4	Sept. 9, "	0.007	87.7		6.6	3.5	1.6	0.6	
McLeod No. 4	Sept. 9, "	0.014	--		--	--	--	--	
Mercury No. 3	Sept. 11, "	--	89.0		5.2	3.7	1.5	0.6	
Model No. 1	Oct. --, "	0.008	--		--	--	--	--	
Regent No. 1	Sept. 9, "	0.010	88.3		5.9	3.5	1.6	0.6	
Royalite No. 6	Aug. 25, "	0.009	88.5		6.5	3.3	1.3	0.5	
" No. 17	Aug. 11, "	Trace	88.3		6.2	3.4	1.5	0.6	
" No. 18	Aug. 13, "	0.007	89.8		4.7	3.3	1.7	0.6	
" No. 19	Sept. --, "	0.008	88.1		6.5	3.4	1.5	0.6	
" No. 23	Aug. 27, "	0.009	87.6		6.4	3.4	1.7	0.9	
Spooner No. 1	Sept. 9, "	0.008	87.4		6.6	3.7	1.6	0.7	
Sterling-Pacific No. 1	Sept. 7, "	0.008	86.8		7.0	3.6	1.8	0.9	
Purified gas from									
Calgary city mains	Aug. Sept. 1929	--	89.1		5.5	3.2	1.3	0.9	
Stabilizer gas	Nov. 16, "	--	25.3		13.6	29.4	23.3	8.4	
" "	Aug. 19, 1930	Trace	36.3		20.7	15.7	16.9	10.4	
Crude naphtha, from separator	Sept. 17, "	--	4.1		4.4	9.4	16.6	65.5	
" " from refinery	Sept. 13, 1929	--	--		--	2.3	10.1	87.6	