

# MAR 19690048: LITTLE RED RIVER

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SHELL CANADA LIMITED  
REPORT ON  
SULPHUR PROSPECTING PERMITS NO. 15, 16 & 17  
LITTLE RED RIVER AREA, ALBERTA

ECONOMIC MINERALS  
FILE REPORT No.

S-AF-015(1)

Shell Canada Limited is the holder of the subject Sulphur  
Prospecting Permits which have the following operative dates:

Permit Nos. 15 & 16 - dated November 9, 1967

Permit No. 17 - dated November 10, 1967

Each permit contains 19,840 acres and together form a contiguous block  
located in Townships 109 & 110, Ranges 5 & 6 West of the 5th Meridian.

In accordance with terms 8 and 9 of the Agreements, dated  
December 8, 1967 covering the subject permits, we submit the following  
report and relevant data.

EXPLORATION CONDUCTED - 1968 PROGRAM:

During the initial term, November 9, 1967 to November 10, 1968  
we carried out the following exploration on the subject permits.

1. A photogeological study of the majority of the area within Permits  
No. 15, 16 and 17. This study was conducted in view of locating changes in  
vegetation growth which could indicate the presence of sulphur rich areas.  
Enclosure No. 3 (Photogeological map) shows the detailed analysis of the  
surface of the study area. Very slight topographic differences indicate  
different vegetation suites in the swampy environment, however no anomalous  
suites which could be expected in sulphurous areas were noted.

2. Field operations consisted of the drilling and sampling of a total  
253 auger holes over the three permits. The majority of the holes were  
drilled to a depth of 10 feet using truck mounted 3-1/2 inch auger drills.  
The location of these holes are shown on Enclosure No. 1 and distributed  
on the permits as follows:

Permit No. 15 - 81 holes drilled

Permit No. 16 - 71 holes drilled

Permit No. 17 - 101 holes drilled

SAMPLING AND ANALYSIS OF SAMPLES:

An average of 2 samples per hole were taken at depths of 5 feet and 10 feet and consisted mainly of clay material in all holes drilled throughout the prospect.

Analysis of the samples were conducted in our laboratory using the Hot Toluene Extraction method. Appendix No. 1 to this report lists the samples analyzed by this method and the results. The calculated percentage of elemental sulphur in each hole shown on the Appendix is also posted beside the bore hole location on Enclosure No. 1.

Following is a breakdown of the number of samples analyzed on each permit from the 1968 drilling program:

Permit No. 15 - 116 samples

Permit No. 16 - 132 samples

Permit No. 17 - 180 samples

EXPLORATION CONDUCTED - 1969 PROGRAM:

During the present six month renewal period of the subject permits we have carried out the drilling and sampling of 270 auger holes. These holes were drilled to an average depth of 22 feet by truck mounted auger drills. The location of the lines drilled during this program are indicated on Enclosure No. 1 in red and blue. This program was designed to detail areas on the permits in which we had encouraging shows of elemental sulphur from the program conducted during 1968.

The holes drilled during this detailing program are distributed on the permits as follows:

Permit No. 15 - 94 holes drilled

Permit No. 16 - 89 holes drilled

Permit No. 17 - 87 holes drilled

The location and spacing of each hole within the permit boundaries is shown on Enclosure No. 2.

SAMPLING AND ANALYSIS OF SAMPLES:

An average of 4 samples per hole were taken at depths of approximately 5 feet, 10 feet, 15 feet and 22 feet, which consisted of mainly clay material similar to that obtained during the previous drilling program.

The analysis of samples from this program were done on a random basis and consisted of changing the elevation of the sample analyzed by 5 feet at each adjacent hole. In this manner it was hoped that a representative average of the sulphur content in the detailed areas could be obtained for the entire 22 foot section.

The analysis of the samples was conducted by Chemical and Geological Laboratories Ltd. Appendix No. 2 to this report lists the samples analyzed and the results.

Following is a breakdown of the number of samples analyzed on each permit from the 1969 drilling program.

Permit No. 15 - 167 samples

Permit No. 16 - 119 samples

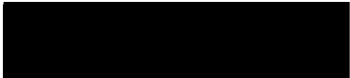
Permit No. 17 - 82 samples

The maximum percentage of elemental sulphur in each hole from the samples analyzed are posted next to the locations shown on Enclosure No. 2.

Attached are the following maps and relevant data pertaining to the exploration work covered in this report and conducted on Sulphur Prospecting Permits No. 15, 16 and 17.

- 1) Enclosure No. 1 - Percentage Grade of Elemental Sulphur in  
Surficial Material as Assayed for Bore Holes  
Drilled in 1968.

- 2) Enclosure No. 2 - 1969 Bore Hole Program Locations on  
Sulphur Permits No. 15, 16 and 17  
Showing Percentage of Elemental Sulphur  
as Assayed in Samples Selected at Various  
Depths in Holes Throughout Prospect
- 3) Enclosure No. 3 - Photogeologic Map
- 4) Appendix No. 1 - Sulphur Analysis by Hot Toluene Extraction  
on Samples from 1968 Bore Hole Program
- 5) Appendix No. 2 - Sulphur Analysis Conducted by Chemical &  
Geological Laboratories Limited on Samples  
from 1969 Bore Hole Program
- 6) Statutory Declarations of Expenditures

  
B.M. Veilleux  
Manager-Southern  
Division Exploration

May 8, 1969

APPENDIX NO. 1

SULFUR ANALYSIS BY HOT TOLUENE EXTRACTION  
ON SAMPLES FROM 1968 BORE HOLE PROGRAM  
LITTLE RED RIVER AREA

NOTE:

(% Water based on Initial Weight of Sample)  
(% Sulfur based on Dry Weight of Sample)

<u>SAMPLE NO.</u>	<u>DEPTH</u>	<u>TOTAL DEPTH</u> <u>OF HOLE</u>	<u>%</u> <u>WATER</u>	<u>%</u> <u>SULFUR</u>	<u>AVERAGE %</u> <u>SULPHUR</u> <u>IN HOLE</u>
1-1-1	5		24.1	0.0	
1-1-2	10	10	20.8	0.9	0.45
1-2-2	10	10	22.8	0.2	0.1
1-3-2	12	12	23.3	0.0	0
1-4-2	10	10	28.1	1.0	0.5
1-5-2	3	10	22.8	0.5	0.15
1-6-2	10	10	21.2	0.4	0.2
1-7-1	2		38.9	32.7	
1-7-2	5		37.4	1.4	
1-7-3	10	10	19.5	0.4	8.7
1-9-2	10	10	20.2	0.1	0.05
1-10-2	10	10	22.7	0.0	
1-11-1	5	10	31.5	0.0	
1-12-1	5		21.2	0.0	
1-12-2	10	10	19.8	0.0	
1-13-1	5	10	19.6	0.1	0.05
1-14-1	5	10	16.1	0.0	
1-16-1	5	10	22.8	0.6	0.3
1-17-1	5	10	20.2	0.0	
1-18-1	5		14.4	0.2	0.1
1-18-2	10	10	20.6	0.0	
1-19-1	5	10	18.0	0.6	0.3
1-20-1	5	10	14.3	0.0	
1-21-1	5	10	15.0	11.5	5.7
1-22-1	5	10	22.7	0.2	0.1
1-23-1	5	10	14.0	0.7	0.35
1-24-1	5	10	13.3	3.8	1.9
1-25-1	5	10	8.6	0.0	
1-26-1	5	10	17.1	0.2	0.1
1-26-2	10	10	18.0	0.0	
1-27-1	5	10	14.1	0.4	0.2
1-28-1	5	10	13.6	0.3	0.15
1-29-1	5	10	12.1	1.8	0.9
1-30-2	10	10	9.6	5.1	2.5
1-31-2	10	10	17.9	0.3	0.15
1-32-2	10	10	14.2	0.6	0.3
1-33-1	5		15.4	0.0	
1-33-2	10	10	10.7	0.9	0.45
1-34-2	10	10	12.8	0.6	.3
1-35-1	5	10	18.1	0.0	
1-36-1	5		18.1	0.6	
1-36-2	7	10	19.6	0.8	.58
1-36-3	10		19.1	0.4	
1-38-1	5	10	14.7	0.4	.2

<u>SAMPLE NO</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
1-39-2	10	10	13.1	1.2	0.6
1-40-2	10	10	14.0	0.3	0.15
1-41-1	5		11.5	1.3	
1-41-2	10	10	13.4	1.0	1.15
1-42-1	5		15.5	0.5	
1-42-2	10	10	15.0	0.5	0.5
1-43-2	10	10	15.1	0.0	
1-45-2	10	10	14.4	1.0	0.5
1-46-1	5	10	16.7	1.9	0.9
1-47-1	5	10	14.8	0.4	0.2
1-48-1	5		14.8	0.8	
1-48-2	10	10	15.9	0.8	0.8
1-49-2	10	10	21.9	0.5	0.25
1-50-1	5	10	18.4	1.2	0.6
1-51-1	5	10	18.4	1.5	0.75
1-52-2	10	10	17.2	0.2	0.1
1-53-1	5		19.8	0.9	
1-53-2	5		17.0	1.4	
1-53-3	8		18.2	0.2	
1-53-4	10	10	14.7	0.1	0.6
1-54-2	10	10	15.3	0.4	0.2
2-1-1	5	10	21.0	0.0	
2-2-1	5	10	17.4	3.6	1.8
2-2-2	10	10	17.8	0.0	
2-3-2	10	10	16.1	0.0	
2-4-1	5		16.7	0.0	
2-4-2	10	10	16.6	0.0	
2-5-2	10	10	16.9	0.0	
2-6-1	5		14.2	3.7	
2-6-2	10	10	16.7	0.0	1.8
2-7-1	5		14.5	0.0	
2-7-2	10	10	17.2	0.0	
2-8-1	5		15.1	0.7	
2-8-2	10	10	17.2	0.0	0.35
2-9-1	5		18.2	0.0	
2-9-2	10	10	16.8	0.0	
2-10-1	5		17.3	0.4	
2-10-2	10	10	19.7	0.0	0.2
2-11-1	5		11.6	5.7	
2-11-2	10	10	19.0	0.2	2.95
2-12-1	5		15.2	0.3	

<u>SAMPLE NO.</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF EACH HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
2-12-2	10	10	17.9	0.0	0.15
2-13-2	10	10	17.7	0.0	
2-14-2	10	10	17.1	0.0	
2-15-2	10	10	15.7	0.2	0.10
2-16-2	10	10	15.4	0.1	0.05
2-17-1	7		15.7	2.1	
2-17-2	10	10	15.6	0.1	1.5
2-17-1	5		18.3	0.4	
2-17-2	10		20.8	0.0	
2-17-3	5		18.5	1.1	0.54
2-17-4	20		18.8	0.8	
2-17-5	25	25	17.7	0.4	
2-18-1	5		22.4	0.0	
2-18-2	10		16.3	0.2	
2-18-3	20		17.7	0.4	0.16
2-18-4	30	30	17.1	0.0	
2-19-2	10	10	18.4	0.4	0.2
2-20-1	2		15.6	0.4	
2-20-2	5		12.1	0.2	.14
2-20-3	10	10	12.8	0.0	
2-21-2	10	10	12.3	1.0	0.5
2-22-1	3		14.7	0.9	
2-22-2	5		10.0	0.4	0.8
2-22-3	10	10	11.9	0.9	
2-23-1	3		20.3	3.1	
2-23-2	5		14.7	0.0	1.5
2-23-3	10	10	12.4	1.5	
2-24-2	10	10	13.3	0.3	0.15
2-25-1	2		12.4	1.1	
2-25-2	5		14.8	0.3	0.69
2-25-3	10	10	17.2	0.6	
2-26-1	5		10.7	0.5	
2-26-2	10	10	12.2	0.5	0.5
2-27-1	5		9.5	0.1	
2-27-2	10	10	14.9	1.9	1.0
2-28-1	3		20.3	1.0	
2-28-2	5		18.2	0.2	.54
2-28-3	10	10	14.1	0.4	
2-29-1	5		15.3	0.0	
2-29-2	10	10	14.2	0.1	.05
2-31-1	5		12.1	0.0	
2-31-2	10	10	13.1	0.0	
2-32-1	7	10	22.9	0.0	
2-33-1	5	10	19.2	0.0	
2-34-1	5	10	13.0	0.0	
2-35-1	5	10	17.3	0.0	
2-36-1	5		12.9	0.0	
2-36-1	10	10	13.1	0.0	
2-37-1	5	10	17.8	0.0	
2-38-2	10	10	14.3	0.0	
2-39-2	10	10	13.7	0.0	
2-40-2	10	10			
2-41-1	5	10	12.3	0.0	
			15.0	0.0	



SAMPLE NO.	DEPTH	TOTAL DEPTH OF EACH HOLE	% WATER	% SULFUR	AVERAGE % SULPHUR IN HOLE
2-41-2	10	10	10.0	0.0	
2-42-1	5	10	10.5	0.0	
2-42-2	10	10	12.9	0.0	
2-43-1	5	10	10.4	0.0	
2-43-2	10	10	10.6	0.0	
2-44-2	10	10	13.2	0.0	
2-45-2	10	10	10.8	0.0	
2-46-2	10	10	16.0	0.0	
2-47-2	10	10	14.1	0.0	
2-48-1	5	10	19.1	0.0	
2-48-2	10	10	17.5	0.0	
2-49-2	10	10	15.2	0.0	
2-50-2	10	10	21.5	0.0	
2-51-1	5	10	14.0	0.0	
2-52-1	5	10	15.8	0.0	
2-53-1	5	10	16.8	0.0	
2-53-2	10	10	16.3	0.0	
2-54-1	5	10	14.3	0.0	
2-54-2	10	10	14.8	0.0	
2-55-1	5	10	13.2	0.0	
2-55-2	10	10	15.7	0.0	
2-56-1	5	10	13.0	0.0	
2-56-2	10	10	15.0	0.0	
2-57-1	5	10	15.0	0.0	
2-58-1	5	10	14.9	0.0	
2-59-1	5	10	14.5	0.0	
3-1-1	5	10	13.0	0.0	
3-1-2	10	10	15.6	0.0	
3-2-1	5	10	11.7	0.0	
3-2-2	10	10	14.5	0.0	
3-3-1	5	10	20.4	0.0	
3-3-2	10	10	15.4	0.0	
3-4-2	10	10	15.1	0.0	
3-54-1	5	10	13.1	0.0	
3-54-2	10	10	13.7	0.1	0.05
3-55-1	2	10	10.2	0.2	
3-55-2	5	10	3.3	0.0	.34
3-55-3	10	10	9.8	0.6	
3-56-1	5	10	10.7	0.0	
3-57-1	5	10	17.6	0.0	
3-57-2	10	10	15.8	0.0	
3-58-2	10	10	19.2	0.0	
3-59-1	5	10	18.7	0.0	
3-59-2	10	10	15.4	0.0	
3-5-2	10	10	15.4	0.0	
3-6-1	5	10	23.4	0.0	
3-6-2	10	10	25.3	0.0	
3-7-1	5	10	27.9	0.0	
3-7-2	10	10	26.3	0.0	
3-8-1	5	10	27.5	0.0	
3-8-2	10	10	28.7	0.0	
3-9-1	5	10	25.0	0.0	
3-9-2	10	10	18.8	0.0	

<u>SAMPLE NO.</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF EACH HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
3-10-1	5	10	19.8	0.0	
3-10-2	10	10	21.7	0.0	
3-11-1	5	10	18.4	0.0	
3-11-2	10	10	17.0	0.0	
3-12-1	5	10	13.6	0.0	
3-12-2	10	10	15.5	0.0	
3-13-1	5	10	14.4	0.0	
3-13-2	10	10	15.9	0.0	
3-14-1	5	10	13.5	0.0	
3-14-2	10	10	14.8	0.0	
3-15-1	2	10	18.8	0.0	
3-15-2	5	10	12.0	0.0	
3-15-3	10	10	16.8	0.0	
3-16-1	5	10	23.9	0.1	0.05
3-16-2	10	10	17.6	0.0	
3-17-1	5	10	16.4	0.0	
3-17-2	10	10	15.3	0.0	
3-18-1	5	10	13.6	0.0	
3-18-2	10	10	13.8	0.2	0.1
3-19-1	15	10	44.5	0.0	
3-19-2	5	10	19.7	0.0	
3-19-3	10	10	16.4	0.0	
3-20-1	5	10	16.0	0.0	
3-20-2	10	10	13.8	0.1	0.05
3-21-1	5	10	13.1	0.0	
3-21-2	10	10	13.4	0.3	0.15
3-22-2	10	10	14.0	0.0	
3-23-1	5	10	12.7	0.0	
3-23-2	10	10	13.6	0.0	
3-24-2	10	10	12.9	0.3	0.15
3-25-1	5	10	12.3	0.0	
3-25-2	10	10	13.1	0.0	
3-26-1	5	10	12.7	0.2	
3-26-2	10	10	13.6	4.1	2.1
3-27-1	5	10	12.3	0.0	
4-15-1	5	10	20.5	0.0	
4-15-2	10	10	16.1	0.0	
4-16-1	5	10	11.2	0.3	
4-16-2	10	10	13.8	0.0	0.15
4-17-1	5	10	15.5	0.9	
4-17-2	10	10	10.1	0.4	0.65
4-18-1	5	10	16.2	0.0	
4-18-2	10	10	10.5	2.7	1.35
4-19-2	10	10	13.1	0.0	
4-20-1	5	10	13.3	0.0	
4-20-2	10	10	14.0	0.0	
3-27-2	10	10	13.9	0.4	0.2
3-28-1	5	10	9.5	0.0	
3-28-2	10	10	10.4	0.2	0.1
3-29-2	10	10	12.3	0.4	0.2
3-30-1	5	10	17.2	0.0	
3-30-2	10	10	16.8	0.0	
3-31-1	5	10	12.6	0.2	
3-31-2	10	10	11.9	0.4	0.3

<u>SAMPLE NO.</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF EACH HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
3-32-1	5	10	13.4	0.2	
3-33-1	5	10	10.7	0.5	0.35
3-33-2	10	10	11.6	0.0	
3-34-1	5	10	11.4	0.0	
3-34-1	10	10	12.5	0.1	0.05
3-35-1	5	10	11.5	0.3	0.15
3-36-1	5	10	15.2	0.1	
3-36-2	10	10	13.8	0.2	0.15
3-37-1	5	10	18.0	0.3	
3-37-2	10	10	17.7	0.4	0.35
3-38-1	5	10	11.3	1.8	
3-38-2	10	10	12.6	0.5	1.15
3-39-2	10	10	12.9	0.0	
3-40-1	5	10	13.5	0.0	
3-40-2	10	10	13.1	0.0	
3-41-1	5	10	10.7	1.1	
3-41-2	10	10	12.7	0.2	0.65
3-42-2	10	10	16.7	0.0	
3-43-1	5	10	16.4	0.4	
3-43-2	10	10	14.7	0.3	.35
3-55-1	5	10	13.7	0.3	0.15
3-44-2	10	10	11.1	0.1	0.05
3-45-1	5	10	11.8	0.0	
3-45-2	10	10	12.0	0.0	
3-46-1	5	10	12.8	0.0	
3-46-2	10	10	12.0	0.0	
3-47-1	5	10	11.7	0.0	
3-47-2	10	10	13.0	0.2	0.1
3-48-2	10	10	11.6	0.8	0.4
3-49-1	5	10	12.9	0.0	
3-49-2	10	10	14.7	0.0	
3-50-1	5	10	56.4	6.0	
3-50-2	10	10	15.3	0.3	3.15
3-51-2	10	10	17.1	0.8	0.4
3-52-2	10	10	13.4	0.0	
3-53-2	10	10	17.2	0.0	
5-30-2	10	10	14.2	0.0	
5-31-1	5	10	16.6	0.0	
5-32-1	5	10	16.7	0.0	
5-33-1	5	10	13.7	0.0	
5-34-1	5	10	19.1	0.0	
5-34-2	10	10	17.0	0.0	
5-35-1	5	10	11.5	0.0	
6-1-1	5	10	34.7	0.8	
6-1-2	10	10	25.9	0.9	0.85
6-2-1	5	10	27.6	1.8	
3-60-2	10	10	12.4	0.0	0
3-61-1	5	10	13.7	0.1	
3-62-2	10	10	13.2	0.1	.1
3-62-1	5	10	20.8	0.4	
3-62-2	10	10	23.2	0.0	.2
3-63-1	5	10	14.4	0.0	
3-63-2	10	10	19.6	0.0	

<u>SAMPLE NO.</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF EACH HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
3-64-1	5	10	72.8	0.0	
4-1-1	5	10	10.3	0.0	
4-2-1	5	10	13.2	0.0	
4-3-1	5	10	8.8	0.0	
4-4-1	5	10	10.3	0.0	
4-4-2	10	10	11.6	0.0	
4-5-1	5	10	19.3	0.0	
4-5-2	10	10	14.2	0.0	
4-6-1	5		8.3	0.0	
4-6-2	10	10	12.1	0.0	
4-7-1	5		10.0	0.0	
4-7-2	10	10	11.5	0.0	
4-8-1	5		21.5	0.0	
4-8-2	10	10	19.1	0.0	
4-9-1	5	10	14.6	0.0	
4-10-1	5		12.2	0.0	
4-10-2	10	10	14.8	0.0	
4-11-1	5	10	16.1	2.0	1.0
4-11-2	10	10	16.9	0.0	
4-12-1	5	10	10.9	0.0	
4-13-1	5	10	12.2	0.0	
4-13-2	10	10	12.4	0.0	
4-14-1	5	10	14.3	0.1	0.05
4-14-2	10	10	12.5	0.0	
5-12-1	5	10	19.9	0.0	
5-12-2	10	10	20.7	0.6	0.3
5-13-2	10	10	10.4	0.0	
5-14-2	10	10	9.6	0.9	0.45
5-15-1	5	10	7.4	0.0	
5-15-2	10	10	11.5	0.0	
5-16-2	10	10	12.9	0.2	
5-17-2	10	10	13.2	0.4	0.3
5-18-1	5	10	11.5	0.0	
5-18-2	10	10	9.6	1.2	0.6
5-19-1	5	10	19.9	0.4	
5-19-2	10	10	17.5	0.2	0.3
5-20-1	5	10	10.6	0.5	
5-20-2	10	10	11.7	0.3	0.4
5-21-1	5	10	17.9	2.3	1.5
5-21-2	10	10	16.8	0.7	
5-22-1	5	10	12.0	1.2	
5-22-2	10	10	13.2	1.5	1.35
5-23-1	5	10	12.7	0.9	
5-23-2	10	10	10.8	0.8	0.85
5-24-1	5	10	12.2	0.4	
5-24-2	10	10	11.6	0.7	0.55
5-25-1	5	10	12.3	0.3	
5-25-2	10	10	11.6	1.3	0.8
5-26-1	5	10	11.9	0.6	
5-26-2	10	10	12.1	0.8	0.7
5-27-1	5	10	11.7	0.7	
5-27-2	10	10	12.3	0.0	0.35

<u>SAMPLE</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF EACH HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
5-28-1	5	10	12.9	0.0	
5-28-2	10	10	13.0	0.0	
5-29-1	5	10	13.6	0.0	
5-30-1	5	10	15.2	0.0	

<u>SAMPLE NO.</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
6-2-2	10	10	26.3	0.9	1.35
6-3-1	5		20.4	0.4	
6-3-2	10	10	24.6	0.9	0.65
6-4-1	5		23.2	0.2	
6-4-2	10	10	23.8	0.5	0.35
6-5-1	5		39.7	0.5	
6-5-2	10	10	37.7	0.5	0.5
6-6-1	18.3		1.2		
6-6-2	10	10	20.6	1.0	0.5
6-7-1	5		27.4	0.6	
6-7-2	10	10	26.9	1.1	0.85
6-8-1	5		30.8	0.7	
6-8-2	10	10	25.9	1.1	0.9
6-9-1	5		33.1	1.3	
6-9-2	10	10	24.1	0.0	0.65
6-10-1	5		15.5	0.4	
6-10-2	10	10	14.2	0.6	0.5
6-11-2	10	10	11.5	0.2	0.1
6-12-1	5		20.7	0.7	
6-12-2	10	10	14.7	0.3	0.5
6-13-1	5		18.5	0.2	
6-13-2	10	10	18.3	1.3	0.75
6-14-2	10	10	18.2	1.2	0.6
6-15-1	5		16.6	0.4	
6-15-2	10	10	17.0	0.3	0.35
6-16-1	5		22.7	0.6	
6-16-2	10	10	15.9	0.1	0.35
6-17-1	5		20.7	0.9	
6-17-2	10	10	15.6	0.0	0.45
6-18-2	10	10	13.7	0.0	
6-19-1	5		12.3	0.0	
6-19-2	10	10	14.2	0.0	
6-20-1	5		9.3	0.0	
6-20-2	10	10	14.1	0.0	
6-21-1	5		20.8	0.0	
6-21-2	10	10	13.1	0.0	
6-22-1	5		23.9	0.4	
6-22-2	10	10	20.6	0.0	0.2
6-23-1	5		30.2	0.0	
6-23-2	10	10	24.2	0.2	0.1
6-24-1	5		30.3	0.0	
6-24-2	10	10	23.2	0.0	
6-25-2	10	10	6.7	0.0	
6-26-1	5		21.9	0.0	
6-26-2	10	10	23.2	0.0	
6-27-2	10	10	17.9	0.2	0.1
6-28-1	5		22.8	0.0	
6-28-2	10	10	15.9	0.0	
6-29-1	5		16.8	0.0	
6-29-2	10	10	16.1	0.0	
6-30-1	5		16.6	0.0	
6-30-2	10	10	15.5	0.0	
6-31-1	5		13.7	0.0	
6-31-2	10	10	14.0	0.0	

<u>SAMPLE NO.</u>	<u>DEPTH</u>	<u>TOTAL DEPTH OF HOLE</u>	<u>% WATER</u>	<u>% SULFUR</u>	<u>AVERAGE % SULPHUR IN HOLE</u>
6-32-1	5		16.1	0.0	
6-32-2	10	10	14.5	0.0	
6-33-2	10	10	19.9	0.0	
6-34-1	5		14.1	0.0	
6-34-2	10	10	14.4	0.0	
6-35-1	5		13.0	0.1	
6-35-2	10	10	15.0	0.0	0.05
6-36-1	5		12.6	0.0	
6-36-2	10	10	14.8	0.0	
6-37-2	10	10	14.9	0.0	
6-38-1	5		14.6	0.0	
6-38-2	10	10	15.2	0.1	0.05
6-39-1	5		14.9	0.0	
6-39-2	10	10	14.4	0.0	
6-40-1	5		18.5	0.0	
6-40-2	10	10	14.0	0.0	

APPENDIX NO. 2  
 SULPHUR ANALYSIS CONDUCTED BY  
 CHEMICAL & GEOLOGICAL LABORATORIES LIMITED  
 ON SAMPLES FROM 1969 BOREHOLE PROGRAM  
 LITTLE RED RIVER AREA

Kind of Sample: Soil

(Re: Shell Oil)

<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>	<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>
1-1-A	10	0.70	1-33-B	10	Nil
1-2-A	15	Nil	1-34-B	15	Nil
1-3-A	22	0.24	1-35-B	22	0.13
1-4-A	15	0.36	1-36-B	15	Nil
1-5-A	10	Nil	1-37-B	10	Nil
1-6-A	15	0.13	1-37-B	10	Nil
1-7-A	22	Nil	1-38-B	15	Nil
1-8-A	15	Nil	1-39-B	22	Nil
1-9-A	10	0.24	1-40-B	15	Nil
1-10-A	15	0.31	1-41-B	10	Nil
1-11-A	22	0.16	1-41-B	15	Nil
1-12-A	15	Nil	1-41-B	22	0.38
1-13-A	10	0.25	1-42-B	10	Nil
1-14-A	10	Trace	1-42-B	15	Nil
1-15-A	15	0.34	1-42-B	22	Nil
1-16-A	15	0.16	1-43-B	10	Nil
1-17-A	10	Nil	1-43-B	15	Nil
1-18-A	15	0.43	1-43-B	22	Nil
1-19-A	15	0.32	1-44-B	10	Nil
1-21-A	10	Nil	1-44-B	15	0.11
1-22-A	15	Nil	1-44-B	22	0.74
1-23-B	22	Nil	1-45-B	10	0.15
1-24-B	15	Nil	1-45-B	15	0.27
1-25-B	10	Nil	1-45-B	22	Nil
1-26-B	15	0.12	1-46-B	10	Nil
1-27-B	22	Nil	1-46-B	15	0.27
1-28-B	15	Nil	1-46-B	22	Nil
1-29-B	10	Nil	1-47-B	10	Nil
1-30-B	15	Trace	1-47-B	15	Nil
1-31-B	22	Nil	1-47-B	22	0.51
1-32-B	15	0.14	1-48-B	10	Nil

continued



<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>	<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>
1-48-B	15	Nil	1-70-C	15	Nil
1-48-B	22	Gravel	1-70-C	22	Gravel
1-49-B	10	Nil	1-71-C	10	Nil
1-49-B	15	Nil	1-71-C	15	Nil
1-49-B	22	Gravel	1-71-C	22	Nil
1-50-B	10	Trace	1-72-C	15	0.13
1-50-B	15	Nil	1-73-C	22	Nil
1-50-B	22	Gravel	1-74-C	10	Nil
1-51-C	10	Nil	1-75-C	15	0.30
1-51-C	15	0.55	1-76-C	22	Nil
1-51-C	22	No sample	1-77-C	15	0.27
1-52-C	10	Nil	1-78-C	10	Trace
1-52-C	15	Nil	1-79-C	15	Trace
1-52-C	22	0.84	1-80-C	22	Nil
1-53-C	15	0.56	1-81-C	15	0.15
1-55-C	22	Nil	1-82-C	10	Trace
1-54-C	10	Nil	1-83-C	15	Nil
1-56-C	15	0.17	1-84-B	22	0.12
1-57-C	22	Nil	1-85-B	15	Nil
1-58-C	15	Nil	1-86-B	10	Trace
1-59-C	10	Nil	1-87-B	15	Nil
1-60-C	15	Nil	1-88-B	22	Nil
1-61-C	22	Nil	1-89-C	15	0.12
1-62-C	15	Nil	1-90-C	10	Trace
1-63-C	10	Nil	1-91-C	15	Trace
1-64-C	15	Nil	1-92-C	22	0.12
1-65-C	15	Trace	1-93-C	15	Nil
1-66-C	10	Nil	1-94-C	15	Nil
1-66-C	15	Nil	1-95-C	15	Nil
1-66-C	22	Gravel	1-96-C	22	Nil
1-67-C	10	Nil	1-97-C	15	0.12
1-67-C	15	Nil	1-98-C	10	Nil
1-67-C	22	Nil	1-99-C	15	0.78
1-68-C	10	Nil	1-100-B	22	Nil
1-68-C	15	Nil	1-101-B	15	1.41
1-68-C	22	0.15	1-102-B	10	0.18
1-69-C	10	Nil	1-103-B	15	0.20
1-69-C	15	Gravel	1-104-B	22	Nil
1-69-C	22	Gravel	1-105-B	15	Nil
1-70-C	10	Nil	1-106-B	10	Nil

Continued +.....

<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>
1-107-B	15	Nil
1-108-B	15	Nil
1-109-B	22	Nil
1-110-B	10	0.84
1-200-B	10	Nil
1-201-B	15	Nil
1-202-B	22	Nil
1-203-B	15	Nil
1-204-B	10	0.18
1-205-B	15	Nil
1-206-B	22	0.30
1-207-B	15	Nil
1-208-B	10	0.40
1-209-B	15	Nil
1-210-C	10	Nil
1-211-C	10	Nil
1-212-C	10	Nil
1-213-C	10	Nil
1-214-C	10	Nil
1-215-C	10	Nil
1-216-C	10	Trace
1-217-C	15	Nil
1-218-C	22	Nil
1-219-A	10	Nil
1-220-A	15	Nil
1-221-A	15	Nil
1-222-A	22	0.15
1-223-A	10	Nil
2-300-C	10	0.13
2-301-C	15	0.23
2-302-C	22	Nil
2-303-C	15	Trace
2-304-C	10	0.28
2-305-C	15	0.62
2-306-C	22	0.52
2-307-B	15	Trace
2-308-B	10	0.33
2-309-B	15	0.46
2-310-B	22	0.98

<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>
2-311-B	15	0.13
2-312-B	10	Nil
2-313-B	15	Nil
2-314-B	22	0.35
2-315-A	15	Trace
2-316-A	10	Nil
2-317-A	15	0.28
2-318-A	22	Nil
3-400-B	15	Nil
3-401-B	10	Nil
3-402-B	15	Nil
3-403-B	22	Nil
3-404-B	5	Nil
3-405-B	10	Nil
3-406-B	15	Trace
3-407-B	22	Nil
3-408-B	15	Trace
3-409-B	10	0.11
3-410-B	15	0.16
3-411-B	22	Nil
3-412-B	15	0.23
3-413-B	10	0.42
3-414-C	15	Nil
3-415-C	22	0.41
3-416-C	15	0.24
3-417-C	10	Nil
3-418-C	10	1.09
3-419-C	22	0.41
3-420-C	15	0.46
3-421-C	10	0.43
3-422-C	15	Nil
3-423-C	15	Nil
3-424-C	15	0.15
3-425-C	10	0.31
3-426-C	15	0.45
3-427-A	22	0.32
3-428-A	15	Nil
3-429-A	10	0.35

Continued .....

SAMPLE NUMBER	DEPTH (In Feet)	ELEMENTAL SULFUR (% by Weight on Dry Sample)
3-430-A	15	0.18
3-431-A	22	0.22
3-432-A	15	Nil
3-500-C	5	Nil
3-500-C	10	Nil
3-500-C	15	Nil
3-500-C	22	Nil
3-501-C	5	Trace (M)
3-501-C	10	Trace
3-501-C	15	Trace
3-501-C	22	Trace
3-502-C	5	Trace (M)
3-502-C	10	Trace
3-502-C	15	Nil
3-502-C	22	Nil
3-503-C	10	Trace
3-503-C	15	Trace (M)
3-503-C	22	Nil
3-503-C	10	Nil
3-504-C	15	Nil
3-504-C	22	Nil
3-505-C	10	Nil
3-505-C	22	0.31
3-506-C	10	Nil
3-506-C	15	Nil
3-506-C	22	Nil
3-507-C	10	Nil
3-507-C	15	Nil
3-507-C	22	Nil
3-508-B	10	Nil
3-508-B	15	0.17
3-508-B	22	Nil
3-509-B	10	Nil
3-509-B	15	Nil
3-509-B	22	0.31
3-510-B	10	0.21
3-510-B	15	Nil
3-510-B	22	Nil
3-511-B	5	Trace (M)
3-511-B	10	Trace (M)

SAMPLE NUMBER	DEPTH (In Feet)	ELEMENTAL SULFUR (% by Weight on Dry Sample)
3-511-B	15	Trace
3-511-B	22	Trace
3-513-B	5	Trace
3-513-B	10	Trace
3-513-B	15	Trace
3-513-B	22	Trace
3-514-B	5	Trace
3-514-B	10	2.17
3-514-B	15	0.14
3-514-B	22	Trace
3-515-A	5	Trace
3-515-A	10	Trace
3-515-A	15	Trace
3-515-A	22	Trace
3-516-A	5	Trace (M)
3-516-A	10	Trace
3-516-A	15	Trace
3-516-A	22	Trace
3-517-A	5	Trace
3-517-A	10	Trace
3-517-A	15	Trace
3-517-A	22	Trace
3-518-A	5	Trace
3-518-A	10	Trace
3-518-A	15	0.38
3-518-A	22	0.99
4-700-A	10	Nil
4-701-A	15	Nil
4-702-A	22	0.10
4-703-A	15	Nil
4-704-C	10	Nil
4-705-C	15	Nil
4-706-C	22	Nil
4-707-C	15	Nil
4-708-C	5	Nil
4-709-C	15	Nil
4-710-C	22	Nil
4-711-B	10	Trace
4-712-B	15	Nil
4-713-B	22	Nil

<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>	<u>SAMPLE NUMBER</u>	<u>DEPTH (In Feet)</u>	<u>ELEMENTAL SULFUR (% by Weight on Dry Sample)</u>
4-714-B	15	Nil	6-611-C	10	Nil
4-715-B	10	Nil	6-612-C	15	Nil
4-716-B	15	Nil	6-613-C	22	Nil
4-717-B	22	0.19	6-614-C	15	Nil
6-600-C	5	Trace	6-615-C	10	Nil
6-600-C	10	Trace	6-616-C	15	Nil
6-600-C	15	Trace	6-617-C	22	Nil
6-600-C	22	Trace	6-618-A	10	Nil
6-601-C	5	1.11	6-619-A	10	Nil
6-601-C	10	Trace	6-620-A	15	Nil
6-601-C	15	0.37	6-621-A	22	Nil
6-601-C	22	Trace	6-622-A	15	Nil
6-602-C	5	Trace	6-623-A	10	Nil
6-602-C	10	Trace	6-624-A	15	Nil
6-602-C	15	Trace	6-625-A	22	0.26
6-602-C	22	Trace	6-626-A	15	0.37
6-603-C	5	Trace	6-627-A	10	Nil
6-603-C	10	0.13	6-628-A	15	Nil
6-603-C	15	Trace	6-629-B	22	0.27
6-603-C	22	Trace	6-630-B	15	Nil
6-604-C	5	Trace	6-631-B	10	Nil
6-604-C	10	Trace	6-632-B	15	Nil
6-604-C	15	0.95	6-633-B	22	Nil
6-604-C	22	Trace	6-634-B	15	Nil
6-605-C	5	Trace	6-635-B	10	Nil
6-605-C	10	Trace	6-636-B	15	Nil
6-605-C	15	Trace	6-637-B	22	Trace
6-605-C	22	Trace	6-638-B	15	Nil
6-606-C	5	Trace	6-639-B	10	0.34
6-606-C	10	Trace	6-640-B	10	Nil
6-606-C	15	Trace	6-641-B	15	Nil
6-606-C	22	Trace	6-642-B	10	0.01
6-608-C	5	Nil	6-643-B	22	Nil
6-608-C	10	Trace	6-644-B	15	Nil
6-608-C	15	1.66	6-645-B	10	Nil
6-608-C	22	0.37	6-646-B	15	0.63
6-609-C	5	0.63	6-647-B	22	0.36
6-609-C	10	0.36			
6-609-C	15	1.04			
6-609-C	22	Trace			
6-610-C	15	Nil			

Rge. 6

Rge. 5

W.5M.

Permit 16

Permit 17

Permit 15

Permit 17

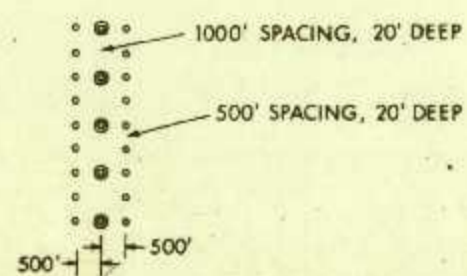
Twp. 110

Twp. 109

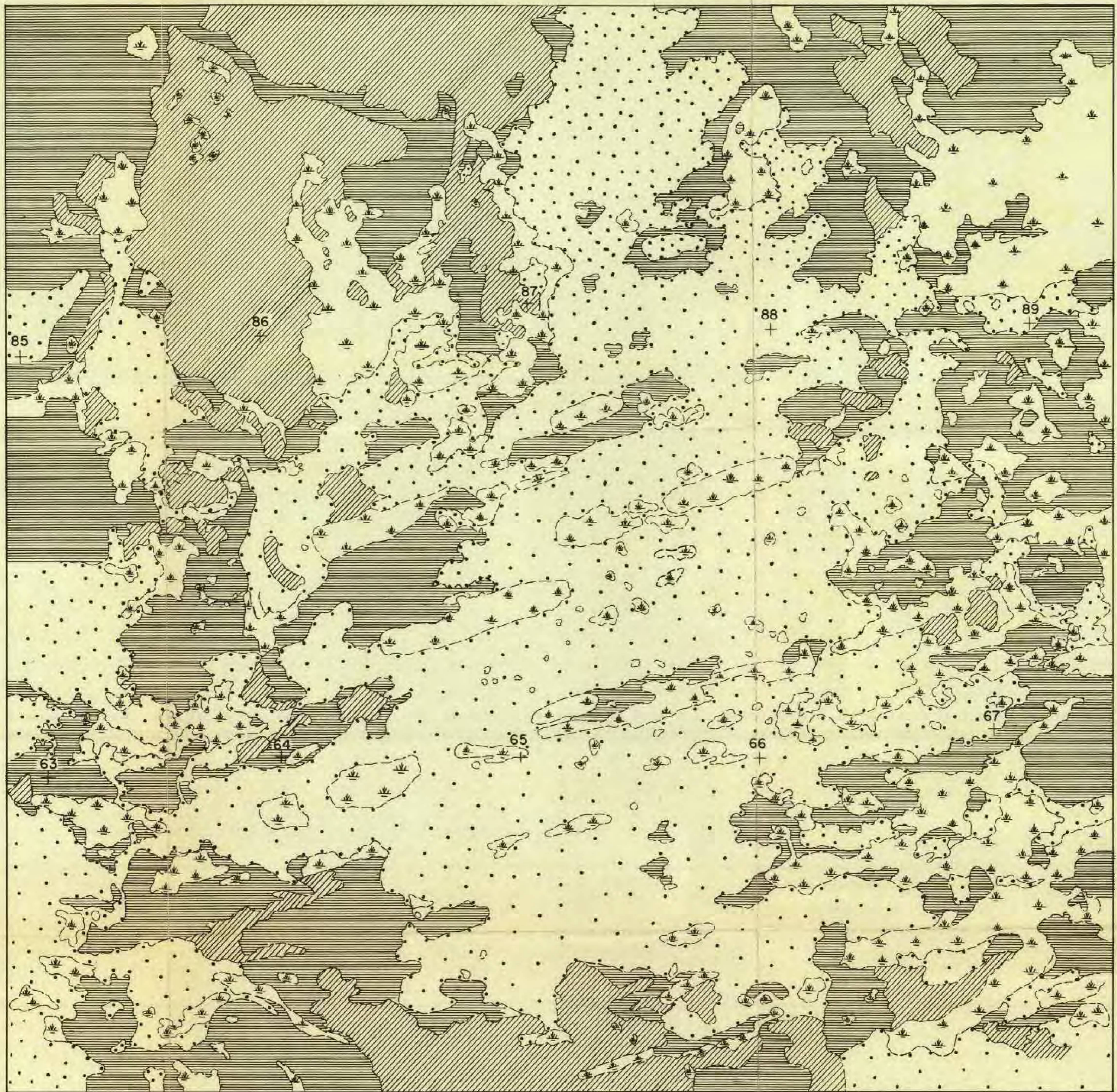
Twp. 108

PEACE RIVER  
LITTLE RED RIVER

LEGEND

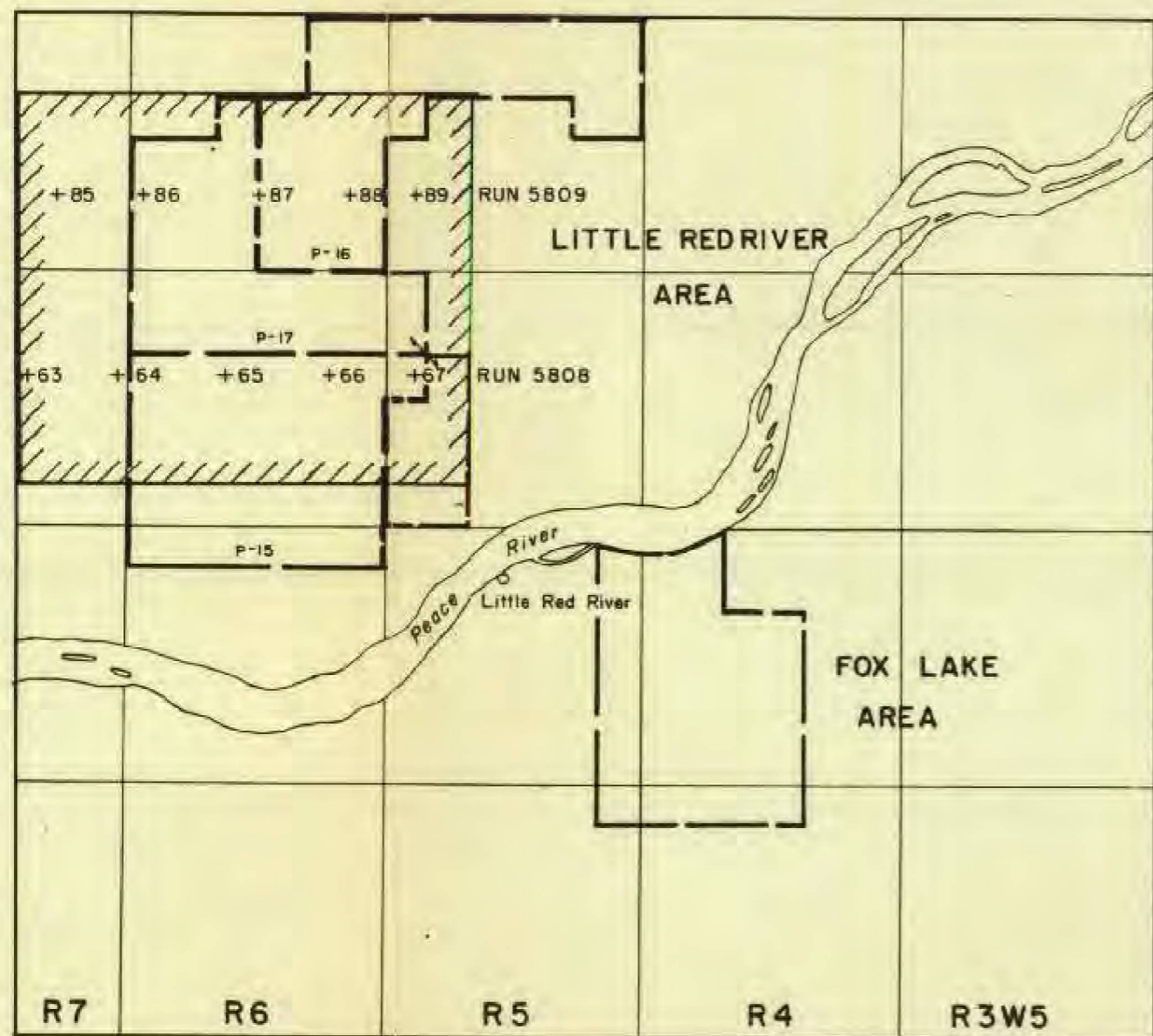


SHELL CANADA LIMITED	EXPLORATION & PRODUCTION	SOUTHERN EXPLORATION DIV.
<b>LITTLE RED RIVER AREA</b>		
ALBERTA		
1969 BORE HOLE PROGRAM LOCATIONS ON SULPHUR PERMITS No. 15, 16 & 17.		
SHOWING PERCENTAGE OF ELEMENTAL SULPHUR AS ASSAYED IN SAMPLES SELECTED AT VARIOUS DEPTHS IN HOLES THROUGHOUT PROSPECT		
SCALE 1" = 4000'		
Section: Geological	Date: April, 1969	
Author: Northern Plains District	Enclosure No: 2	
	Drawing No.	
To accompany Report On Sulphur Permits No. 15, 16 & 17		


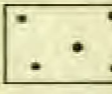


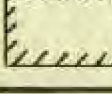


RUN 5809

RUN 5808



**LEGEND**

-  SWAMP
-  ± 2' SWAMP
-  ± 4' above SWAMP
-  > 5' above SWAMP
-  PHOTOGEOLOGIC AREA

Tp. 110

Tp. 109

Tp. 108

Tp. 107

INDEX MAP—SCALE IN MILES



SHELL CANADA LIMITED	EXPLORATION & PRODUCTION	SOUTHERN EXPLORATION DIV.
LITTLE RED RIVER & FOX LAKE AREA ALBERTA		
<b>PHOTOGEOLOGIC MAP</b>		
CONTOUR INT.:		SCALE.:
Section: PHOTOGEOLOGICAL		Date: OCTOBER 1968
Author: J. C. ALBRECHT		Enclosure No: 3
Grid: AJ		Drawing No: Q-153
To accompany Report On Sulphur Permits No. 15, 16 & 17		

III  
6W5

III  
5W5

FINA et al  
Margaret  
1257 4-12  
5326  
Dn-530  
Dwt-677  
Dms-702  
Dbr-1643  
De-2023  
Pg-2068

AR-680  
19,840 Ac.  
(SULPHUR)

AR-681  
19,840 Ac.  
(SULPHUR)

LITTLE RED RIVER

P-16

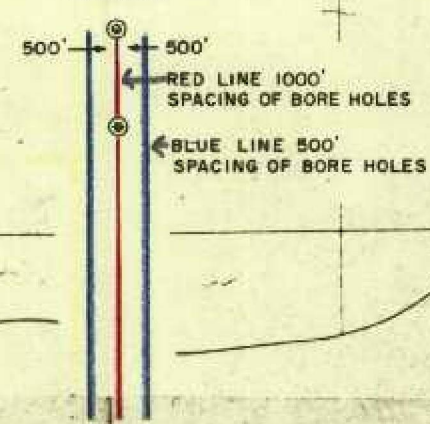
P-17

AR-679  
19,840 Ac.  
(SULPHUR)

AR-681  
19,840 Ac.  
(SULPHUR)

LEGEND

LOCATION OF 1969 BORE HOLE PROGRAM



SHELL CANADA LIMITED		EXPLORATION & PRODUCTION	SOUTHERN EXPLORATION DIV.
<b>LITTLE RED RIVER AREA</b>			
ALBERTA			
<b>PERCENTAGE GRADE OF ELEMENTAL SULPHUR IN SURFICIAL MATERIAL AS ASSAYED FOR BORE HOLES DRILLED IN 1968</b>			
CONTOUR INT.		SCALE: 1" = 4000'	
Section: GEOLOGICAL	Date: OCTOBER		
Author: A. H. SIKANDER	Enclosure No: 1		
Grid: Au	Drawing No: Q-153		
To accompany Report On Sulphur Permits No. 15, 16 & 17.			

1969048

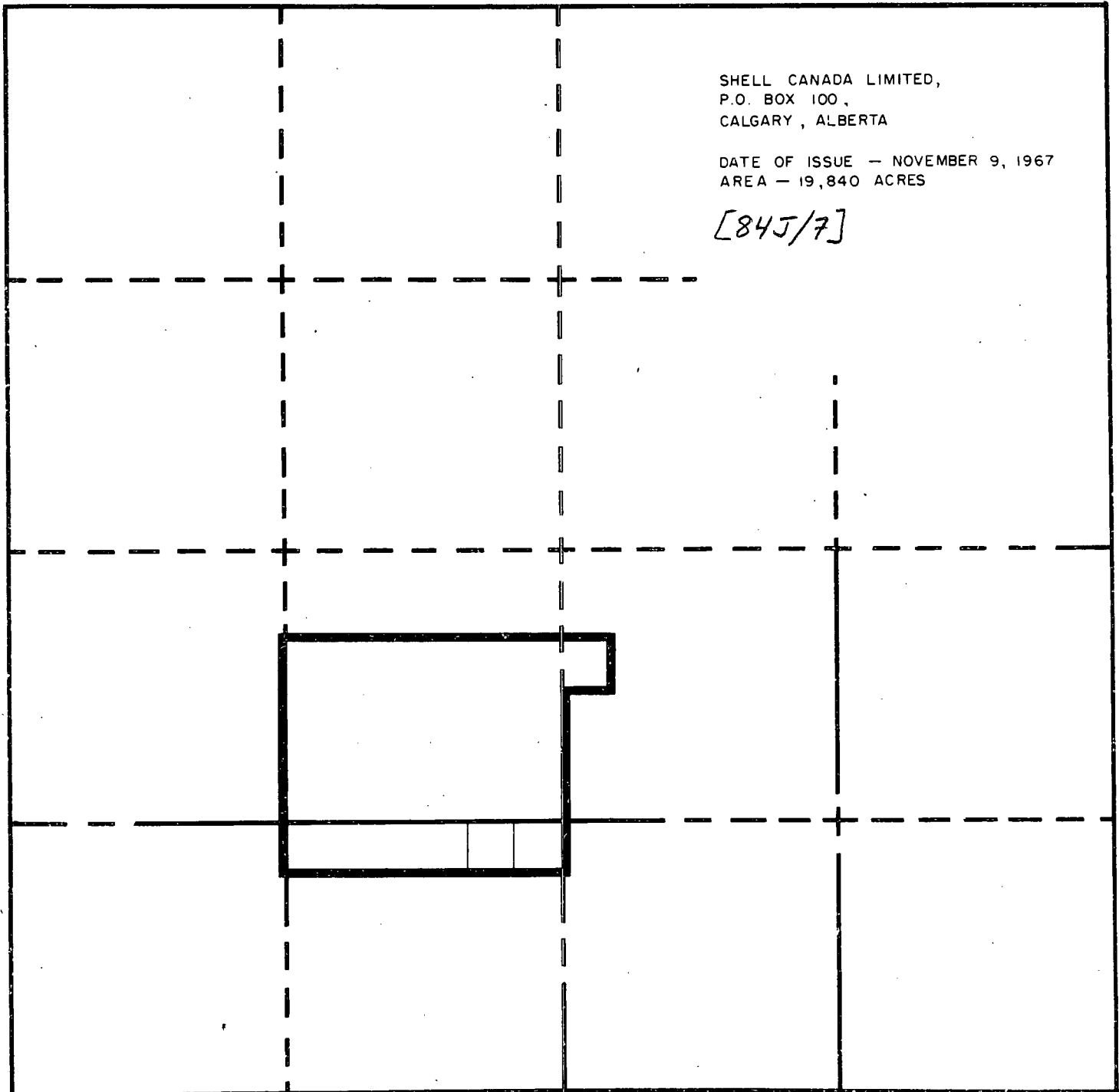
19690048

# SULPHUR PROSPECTING PERMIT No. 15

SHELL CANADA LIMITED,  
P.O. BOX 100,  
CALGARY, ALBERTA

DATE OF ISSUE — NOVEMBER 9, 1967  
AREA — 19,840 ACRES

[84J/7]



TP. 109

TP. 108

R. 6

R. 5

R. 4 W. 5 M.



19690048

SULPHUR PROSPECTING PERMIT No. 16

SHELL CANADA LIMITED,  
P.O. BOX 100,  
CALGARY, ALBERTA

DATE OF ISSUE - NOVEMBER 9, 1967  
AREA - 19,840 ACRES

[84J/10]

CORRECTION LINE

TP. 110

TP. 109

R. 6

R. 5

R. 4 W. 5 M.

19690048

SULPHUR PROSPECTING PERMIT No. 17

SHELL CANADA LIMITED,  
P.O. BOX 100,  
CALGARY, ALBERTA

DATE OF ISSUE - NOVEMBER 10, 1967  
AREA - 19,840 ACRES

[84J/7+10]

TP. 110

TP. 109

TP. 108

R. 6

R. 5

R. 4 W. 5 M.