

# MAR 19690054: NORTHERN ALBERTA

Received date: Dec 31, 1969

Public release date: Jan 01, 1971

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FINAL REPORT ON SULPHUR EXPLORATION  
SULPHUR PROSPECTING PERMIT NO. 61  
TWPS. 110, 111, RGS. 6, 7, 8 W5M

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Sulphur Prospecting Permit No. 61 (79,360 acres) was acquired by Texaco Exploration on December 18, 1967 and was surrendered one year later after exploration work failed to indicate the presence of sulphur. The discovery deposit which sparked the Northern Alberta elemental sulphur play is unique to Canada. The lack of experience in exploring for this element necessitated a great deal of research into geological literature in order to arrive at an exploration program that was practical, efficient and was based on sound geological reasoning. Exploration methods considered are as follows:

1. Photogeology - used in selection of areas where sulphur rights were obtained.
2. Geochemical surveys of creeks and streams - not sufficiently definitive.
3. Aerial remote sensing - heavy glacial cover severely reduces its usefulness.
4. Geobotanical surveying - no control data available on Alberta flora. Potentially useful.
5. Detection of traces of H<sub>2</sub>S in shallow holes.
6. Resistivity surveys - compromised by presence of clay and shale with sulphur.
7. Reconnaissance drilling.

Texaco concluded that drilling offered the most positive information.

Exploration on Permit No. 61 was conducted during November and December, 1968 and consisted of 289 twelve foot deep auger holes spaced at 1,000 foot intervals along 54 miles of existing seismic lines. The twelve foot depth was judged adequate for reconnaissance drilling based on industry's experience during the winter of 1967-1968 when any sulphur found always was present at least as high as ten feet below the surface.

Two samples were taken from each hole and qualitative flame

tests were run for presence of sulphur and semi-quantitative tests for water soluble sulphates. The latter test was included as a possible indirect clue to the presence of sulphur. As mentioned previously no sulphur was detected in any of the 578 samples. With the exception of the two areas marked on the accompanying map the background sulphate content was too high to allow utilization of this method of indirectly indicating possible sulphur in the vicinity. The two marked areas showed essentially no sulphate content.

In view of the completely negative results of the auger hole program it was decided to surrender this Permit.

TEXACO EXPLORATION COMPANY



W. H. Rimmer,  
Chief Geologist.

TD/dl  
Attch.

Calgary, Alberta,  
January 6, 1969.

R.9W5M.

R.8W5M.

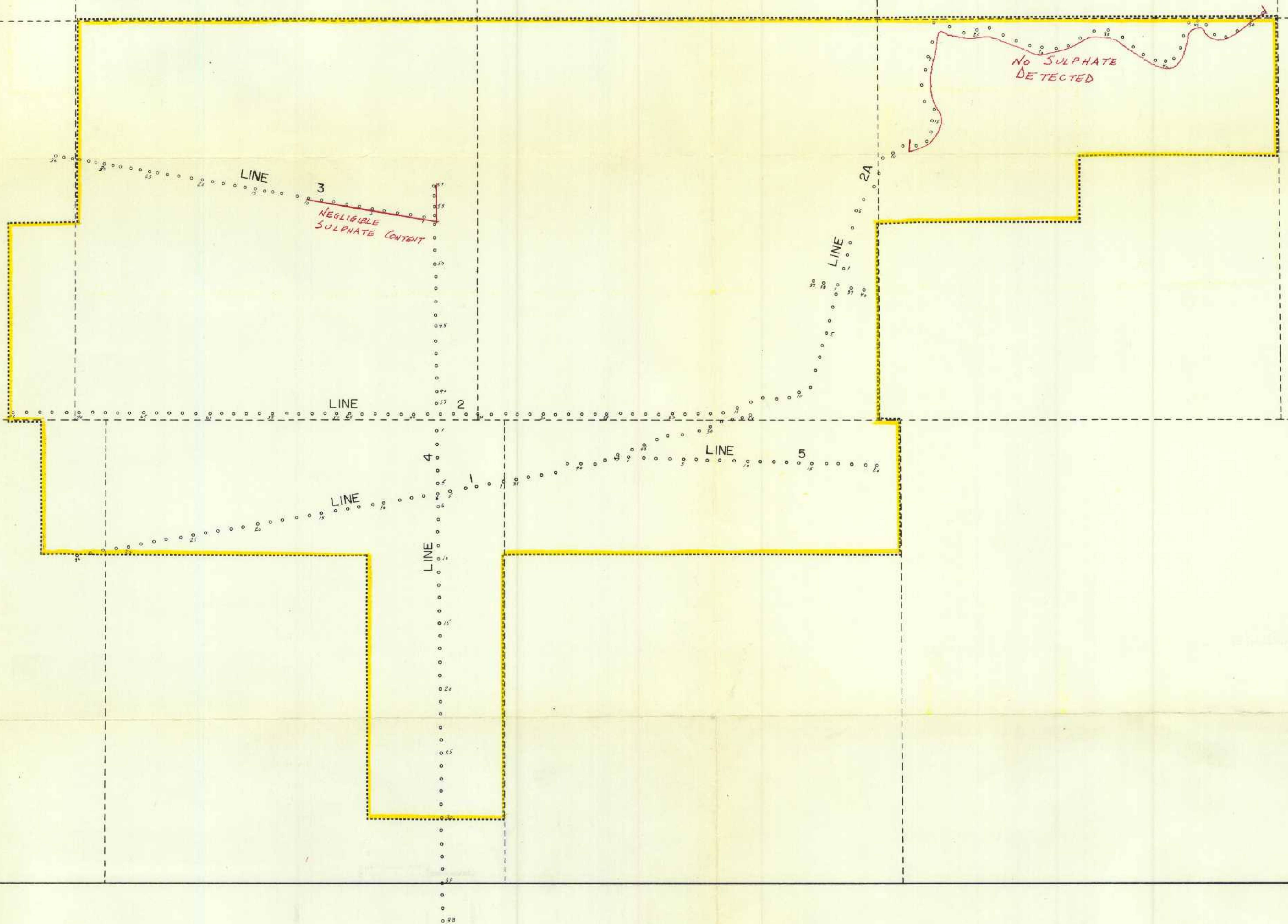
R.7W5M.

R.6W5M.

TP.112

TP.111

TP.110



OVERLAND  
EXPLORATION SERVICES LTD.

FOR  
TEXACO EXPLORATION COMPANY

SULPHUR PERMIT No. 61

SAMPLE HOLE LAYOUT

DATE: Jan. 7, 1969

Scale: 1" = 1 mile

19690054

Map No. 1

SULPHUR PROSPECTING PERMIT NO. 61

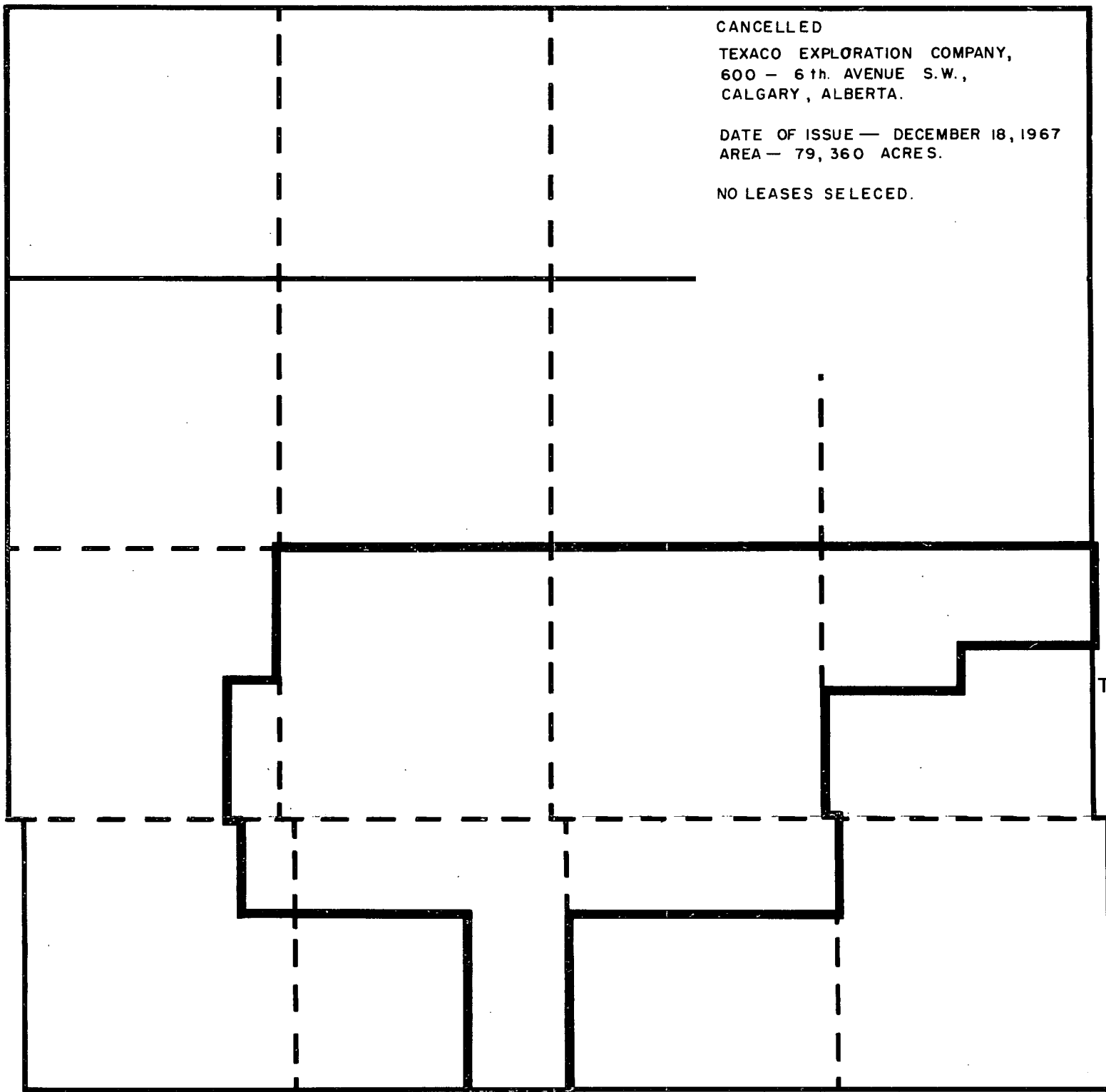
1969.0054

CANCELLED

TEXACO EXPLORATION COMPANY,  
600 - 6th AVENUE S.W.,  
CALGARY, ALBERTA.

DATE OF ISSUE — DECEMBER 18, 1967  
AREA — 79,360 ACRES.

NO LEASES SELECED.



TP. III

845/10+11

TP. 110

R. 9

R. 8

R. 7

R. 6 W. 5 M.