

MAR 19680091: FOGGY MOUNTAIN

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ECONOMIC MINERALS

FILE REPORT No.

S-AP-098(1)

REPORT ON FIELD WORK

OF CORE DRILLING

IN THE

FOGGY MOUNTAIN SULPHUR PROSPECT AREA

OF

ALBERTA, CANADA

FOR

MESA PETROLEUM CO.

BY

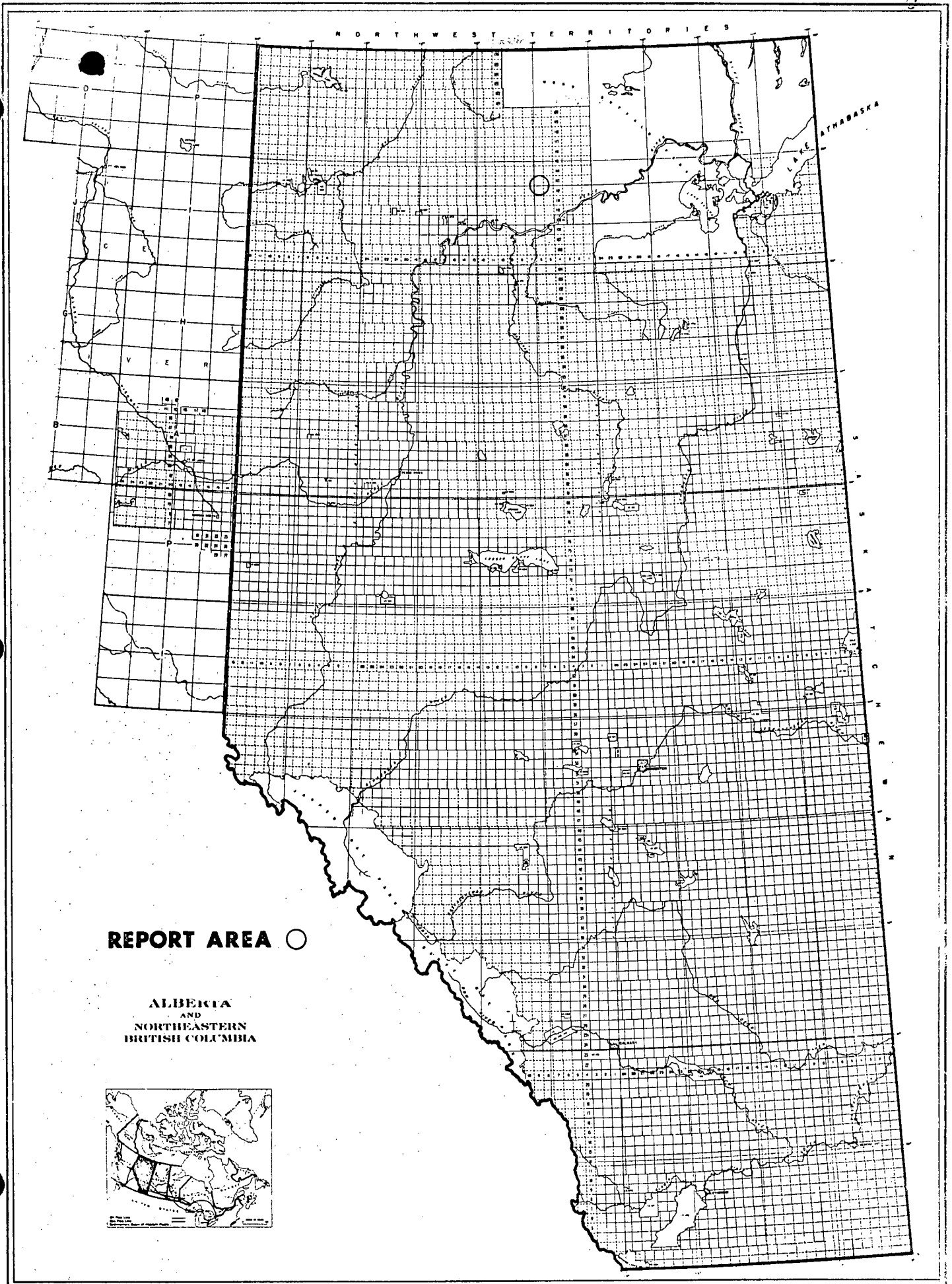
SIGMA EXPLORATIONS LTD.

PROJECT NO. 97, 98 & 99

Calgary, Alberta, Canada

September, 1967

INDEXING DOCUMENT NO. 700444



INDEX

Page no.

1 - 2	LOCATION OF AREA
3 - 6	FIELD OPERATIONS
7	RESULTS & RECOMMENDATIONS
8 - 10	ASSAYS

Map no.

1	MAP SHOWING INITIAL ASSAY VALUES
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LOCATION OF AREA

These sulphur permits are located in Northern Alberta, Twp. 112 & 113, Rge. 5, 6 & 7 W.5M., approximately 35 miles west of Wood Buffalo National Park and 25 miles north of the Peace River.

Topography

Permits 97, 98 and 99 are located on the southeasterly slope of the Caribou Mountains north of the Peace River.

Elevations across the permit areas varied from 3100 feet above sea level to 1300 feet above sea level and provided some 1800 feet of relief across the permits. Severe elevation changes were encountered on Permits 97 and 99, while Permit 98 was located mostly on a high plateau near the top of the Caribou Mountains.

The general drainage pattern is toward the south and southeast. The Lawrence River and its tributary streams drain the westerly portion of the permit area while in the east all drainage is into the Wentzel River. A series of small muskeg lakes were encountered on the north part of Permit 98, and these lakes were at near flood stage due to abnormally heavy rainfalls. Forest cover throughout most of the prospect area graded from very light to medium with some heavy stands of spruce occurring

near the main creeks and rivers. Near the top of the Caribou Mountains the area is covered with small stunted spruce and tamarack, while the southern slopes graded into heavier spruce, willow and some poplar. No timber of commercial size or quality was noted in the area.

Access

Access to the area was gained by a road running east from High Level to Jean D'Or Prairie Indian Reserve and across the Lawrence River. A bridge constructed by Imperial Oil Limited and the Swanson Lumber Company allowed passage across the river. From this point a Forestry road into the Foggy Mountain Tower was utilized, however, this road was badly eroded by spring streams and could only be travelled by tracked vehicle. All camp supplies had to be trucked to the Lawrence River by a four-wheel drive power wagon and transported from there onward by Nodwell tracked vehicle.

A small airstrip is located right at the Foggy Mountain Tower but was unserviceable during the entire time the crew worked in the area because of heavy rainfall. Thus it was only possible to make air drops of essential items at the airstrip but no landings or takeoffs were possible.

Weather

The weather conditions encountered during the field operations were extremely wet with some six and one-half inches of rainfall being recorded during the 15 days the crew worked in the area. Thus extreme difficulty was encountered by men and equipment travelling on roads and trails during this time, and great care had to be taken at all river and creek crossings to insure the safety of men and machines in the swift moving water. Severe erosional conditions existed on all roads which provided additional hazards while moving in the permit area. Daytime temperatures averaged 50°F to 60°F during the survey combined with severe rain falls and low fog conditions.

FIELD OPERATIONS

Field operations were commenced on the permit area July 4, 1968, and were completed on July 18, 1968. One other exploration program was done by the crew and equipment in the vicinity of the Foggy Mountain Tower during the later part of July and thus the costs of moving the camp and equipment from Fort Vermilion to Foggy Mountain and return was proportionately divided between the operating companies.

All line cutting was carried out by men using axes and power saws and the average line progress was approximately

one-half mile per day per man. No major problems were encountered in the permit area except that the continuous rain made travel extremely difficult. As a result, the crew was divided into two parties and each "fly camped". One was located in Permit 99 the other in Permit 97, at the eastern and western ends of the survey.

During this period a total of 11.7 miles of new line were cut by hand and drilled and 20.6 miles of existing line were drilled, and a total of 123 hole locations were drilled. In addition to this program, drilling operations were carried out in four separate areas, designated locations A, B, C, & D, which areas were located from a Terrain Analysis Map prepared by Geophoto Services Ltd., Calgary,

A fifth area outlined on the Terrain Analysis Map at the north end of the Permit 98 could not be reached for examination because of extreme high water conditions encountered in a series of small muskeg lakes southwest of the location.

Drilling

Drilling was carried out using two General Model GT30 powered hand augers as well as one conventional manual hand auger.

These drills were equipped with extra sectioned drill stem which made it possible to extend the holes down to a

maximum depth of 12 feet in certain areas.

Unfortunately, it was not possible to complete many of the holes down to total depth because of the presence of permafrost in the area. Nine of the locations could not be drilled at all because it was found that the permafrost extended right to surface and was only covered by a thin layer of moss. The balance of the holes were drilled to frost-line and for the most part managed to penetrate to a depth of six to eight feet. Drilling conditions were also hampered slightly by surface gravels being encountered in some holes, but it was possible to obtain at least one or two samples from each of these gravel locations.

Sampling

An average of two samples were taken per hole at depths of six feet and at the bottom of the hole. These samples were batched and an average representative sample was collected and marked for each interval. In areas where shallow permafrost conditions were encountered, the sample interval was altered slightly, with the first sample being taken from zero to four feet, and the second sample from four feet to the top of the permafrost. No problems were encountered in getting samples

in any of the holes except where permafrost was encountered and clean representative samples were obtained in all but nine of the locations. Results of the assays, the majority of which were taken at six feet, are contained in the back of this report.

Plugging

Holes were plugged with wooden hole plugs after drilling to prevent accidents to the workmen while walking up and down the cut lines, or to any wild animals which may stray onto the drill locations later.

Surveying

No vertical control was carried over the permit area, but horizontal control was maintained by chaining. A transit was used to turn off angles for the new cut lines and to check angles at intersections of existing lines. Control was established from maps made from aerial surveys showing existing seismic cut lines or identifiable topographic features on the ground.

Bore hole locations were permanently marked by blazing trees a few feet from the cut line and marking the hole number of the tree with ink pens and metal tapes nailed to the tree. Thus each of the hole locations could be easily re-established for future reference.

RESULTS & RECOMMENDATIONS

From the initial assay results it has been established that only ten of the test holes drilled in these three permit areas assayed values above 2% elemental sulphur. The highest assay obtained was in the drill hole 98-1-3 which assayed 4.26% elemental sulphur by weight.

The limited amount of drilling done in permit number 97 would indicate that very little sulphur is present on the lines drilled. Permit 98 appears to have the best assays for elemental sulphur with six drill locations showing values in excess of 2%. Five of these holes are located in the southern area of the permit and should further exploration be contemplated on these permits it is recommended that this area be detailed to a greater extent.

None of the special holes, A, B, C, or D showed any increased value in sulphur content over the other areas. These holes were drilled in areas where a terrain analysis indicated possible concentration of elemental sulphur. Upon investigation by the crew these areas were found to be wet, swampy muskeg areas, covered by thick layers of moss.

No interpretation of these results will be attempted by the writer within the scope of this report.

Approved:

[Redacted Signature]

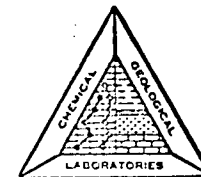
W. N. Rabey, P. Eng.

Respectfully submitted,

[Redacted Signature]

James D. Fowlie, Supervisor

CHEMICAL & GEOLOGICAL LABORATORIES LTD.



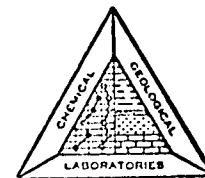
Page 3

OPERATOR: Sigma Explorations Ltd.
 KIND OF SAMPLE: Soil
 125 Samples

REPORT NUMBER: C68-3967
 Date Reported: August 19, 1968
 Date Received: July 24, 1968

<u>SAMPLE NUMBER</u>	<u>DEPTH IN FEET</u>	<u>ELEMENTAL SULFUR (% by Weight)</u>
99-1-1	4'	0.14
99-1-2	4'	0.28
99-1-3	4'	0.59
99-1-4	3'	2.29
99-1-5	3'	0.40
99-1-6	3'	trace
99-1-7	2'	0.34
99-1-8	6'	0.15
99-1-9	8'	0.18
99-1-10	4'	0.22
99-1-11	3'	0.12
99-1-12	NO SAMPLE	
99-1-13	6'	trace
99-1-14	2'	0.33
99-1-15	NO SAMPLE	
99-1-16	3'	trace
99-1-17A	2'	0.54
99-1-17B	5'	0.24
99-1-18	4'	0.19
99-1-19	4'	0.05
99-1-20	4'	0.23
99-1-21	2'	0.47
99-1-22	4'	0.27
99-1-23	4'	trace
99-1-24	4'	0.40
99-1-25	5'	trace
99-1-26	5'	0.35
99-1-27	2'	2.0%
99-1-28	2'	0.64
99-1-29	3'	0.26
99-1-30	4'	0.13

CHEMICAL & GEOLOGICAL LABORATORIES LTD.



Page 2

OPERATOR: Sigma Explorations Ltd.
 KIND OF SAMPLE: Soil
 125 Samples

REPORT NUMBER: C68-3967

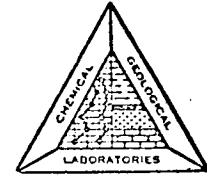
Date Reported: August 19, 1968

Date Received: July 24, 1968

<u>SAMPLE NUMBER</u>	<u>DEPTH IN FEET</u>	<u>ELEMENTAL SULFUR (% by Weight)</u>	<u>SAMPLE NUMBER</u>	<u>DEPTH IN FEET</u>	<u>ELEMENTAL SULFUR (% by Weight)</u>
98-7-1	2'	0.69	98-4-8	5'	0.59
98-7-2	2'	0.38	98-4-9	6'	2.17
98-7-3	3'	0.46	98-4-10	6'	0.34
98-2-4	7'	0.41	98-4-11	3'	0.44
98-7-5	6'	1.08	98-4-12	6'	0.47
98-7-6	2'	1.02	98-4-13	3'	0.21
98-7-7	7'	2.34	98-4-14	4'	0.19
			98-4-15	6'	0.17
98-5-1	4'	1.51	98-4-16	2'	0.35
98-5-2	4'	0.05	98-4-17	NO SAMPLE	
98-5-3	4'	0.05	98-4-18	4'	0.20
98-5-4	3'	0.53	98-4-19	6'	0.03
98-5-5	4'	2.25	98-4-20	4'	0.35
98-5-6	4'	1.79	98-4-21	6'	0.05
98-5-7	4'	0.25	98-4-22	6'	0.25
98-5-8	4'	0.78	98-4-23	6'	0.03
98-5-9	4'	0.47	98-4-24	3'	0.04
98-5-10	4'	1.61	98-4-25	4'	0.20
98-5-11	4'	1.35	98-4-26	NO SAMPLE	
			98-4-27	5'	0.40
98-4-1	4'	0.19	98-4-28	6'	0.30
98-4-2	2'	0.36	98-4-29	2'	0.46
98-4-3	3'	0.45	98-4-30	2'	0.83
98-4-4	5'	1.90	98-4-31	3'	0.48
98-4-5	7'	0.22			
98-4-6	3'	0.45			
98-4-7	5'	0.64			

continued.....

CHEMICAL & GEOLOGICAL LABORATORIES LTD.



OPERATOR: Sigma Explorations Ltd.

REPORT NUMBER: C68-3967

KIND OF SAMPLE: Soil

Date Reported: August 19, 1968

12^F Samples

Date Received: July 24, 1968

Permits: 97, 98 and 99

<u>SAMPLE NUMBER</u>	<u>DEPTH IN FEET</u>	<u>ELEMENTAL SULFUR (% by Weight)</u>	<u>SAMPLE NUMBER</u>	<u>DEPTH IN FEET</u>	<u>ELEMENTAL SULFUR (% by Weight)</u>
98-1-1	9'	0.10	98-2-9	12'	0.55
98-1-2	6'	2.53	98-2-10	6'	0.50
98-1-3	4'	4.26	98-2-11	12'	1.65
98-1-4	6'	0.59	98-2-12	6'	1.11
98-1-5	6'	0.99	98-2-13	9'	1.33
98-1-6	7'	0.53	98-2-14	9'	0.20
98-1-7	7'	1.43	98-2-15	6'	1.04
98-1-8	8'	0.30	98-2-16	6'	0.42
98-1-9	NO SAMPLE		98-2-17	1'	trace
98-1-10	6'	0.75	98-2-18	2'	0.36
98-1-11	6'	3.77			
98-1-12	8'	1.39	99-2-1	NO SAMPLE	
98-1-13	8'	2.47	99-2-2	NO SAMPLE	
98-1-14	7'	0.04	99-2-3	NO SAMPLE	
98-1-15	3'	0.15	99-2-4	3½'	trace
98-1-16	9'	2.81	99-2-5	4'	0.30
98-1-17	6'	0.35	99-2-6	3'	1.43
98-1-18	4'	2.75	99-2-7	4'	0.65
98-1-19	5'	1.53	99-2-8	5'	0.37
			99-2-9	3'	trace
98-2-1	6'	3.03	99-2-10	3'	trace
98-2-2	6'	0.97	99-2-11	3'	0.91
98-2-3	12'	2.55	99-2-12	1'	0.45
98-2-4	12'	1.57	99-2-13	3'	2.11
98-2-5	12'	0.67	99-2-14	4'	2.44
98-2-6	6'	0.42	99-2-15	2'	2.53
98-2-7	4'	3.44	99-2-16	1'	0.20
98-2-8	12'	1.24			

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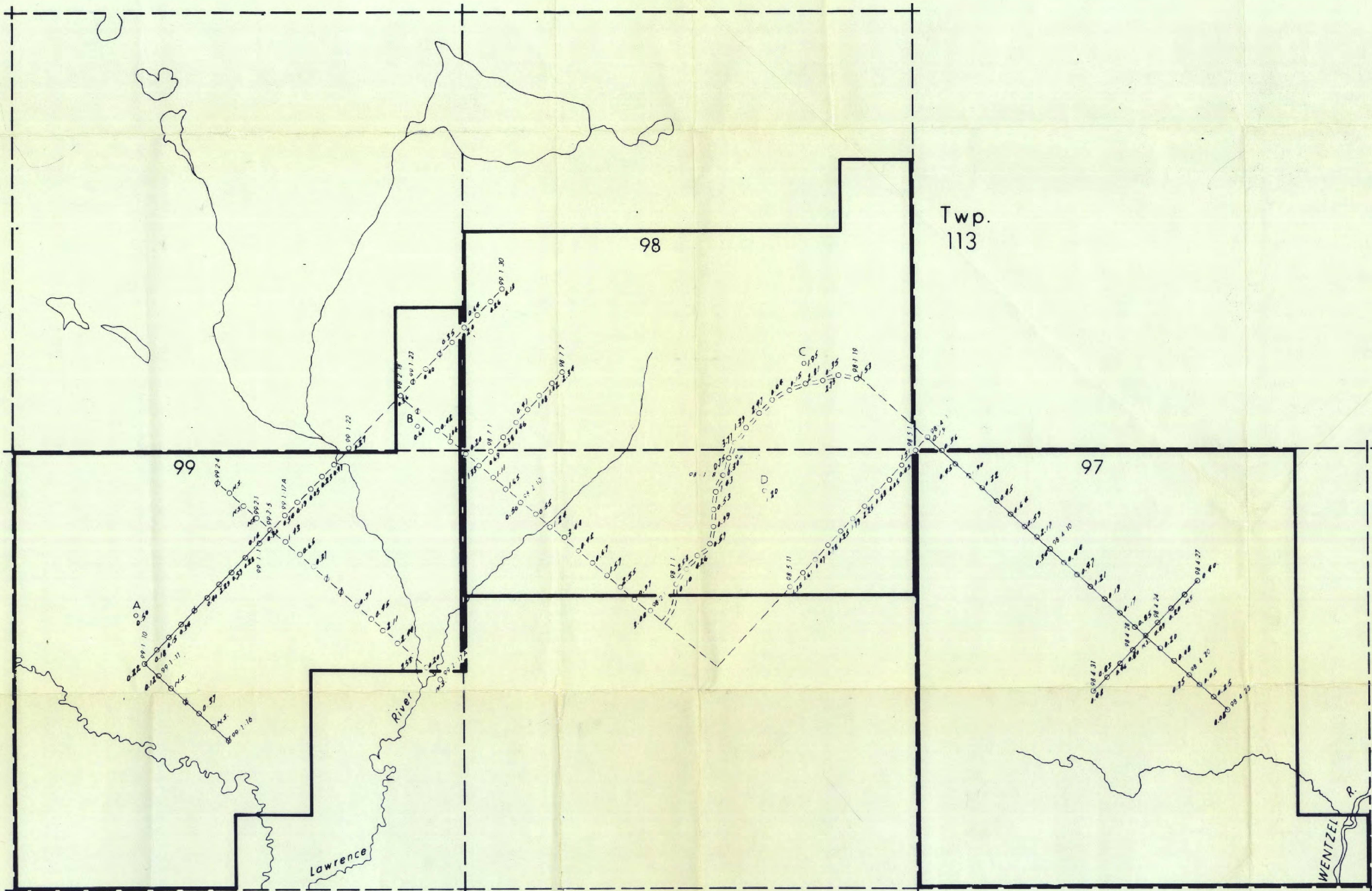
Rge. 7

Rge. 6




W.5M.

Twp. 113

Twp. 112



LEGEND

-  PERMIT OUTLINE
-  NEW LINE CUT & DRILLED
-  EXISTING LINE DRILLED

SIGMA EXPLORATIONS LTD.
 308 8th Ave. SW. Calgary, Alberta Phone 264 7865

SULPHUR EXPLORATION PROGRAM
 PERMIT No's 97-98-99

SCALE: 1" = 1 Mile AUGUST/1968

Map No. 1
 19680091