

# MAR 19650001: SOUTHEASTERN ALBERTA

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HUDSON'S BAY OIL AND GAS COMPANY LIMITED  
GEOLOGICAL DEPT.  
CALGARY ALBERTA

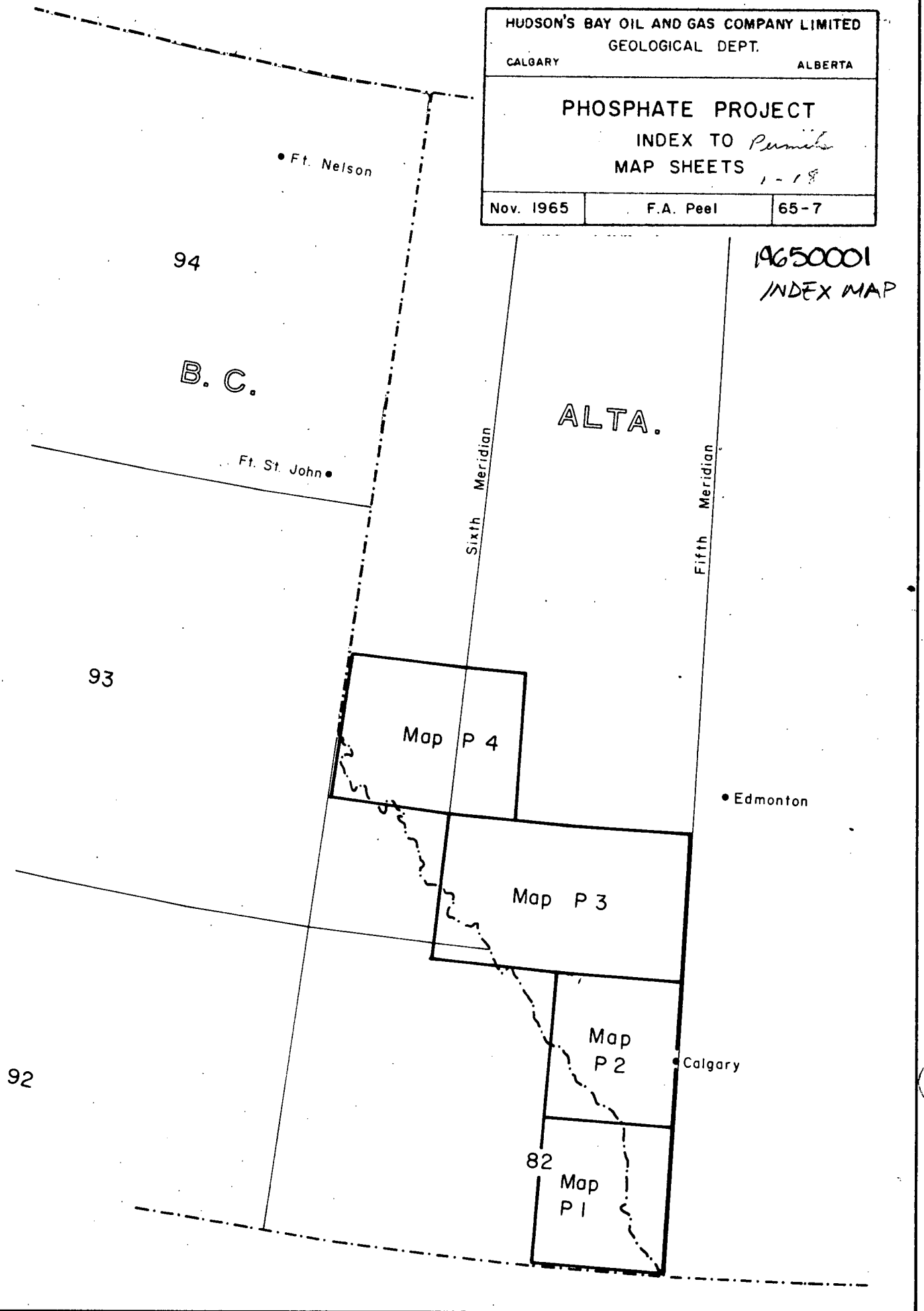
PHOSPHATE PROJECT  
INDEX TO *Permits*  
MAP SHEETS 1-18

Nov. 1965

F.A. Peel

65-7

19650001  
INDEX MAP



STATUTORY DECLARATION

DOMINION OF CANADA )  
 ) IN THE MATTER OF ROCK PHOSPHATE PROSPECTING  
 ) PERMITS Numbers 1 to 18 INCLUSIVE STANDING IN  
PROVINCE OF ALBERTA )  
 ) THE NAME OF HUDSON'S BAY OIL AND GAS COMPANY  
 ) LIMITED, AND,  
 )  
 ) IN THE MATTER OF CERTAIN EXPENDITURES MADE ON  
 ) THE SAID PERMITS BY HUDSON'S BAY OIL AND GAS  
 ) COMPANY LIMITED

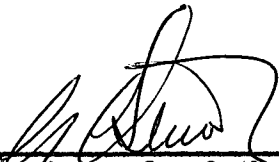
I, FRANK JOHN MAIR, Chartered Accountant, of the City of  
Calgary, in the Province of Alberta, DO SOLEMNLY DECLARE:

1. THAT I am Controller of Hudson's Bay Oil and Gas Company Limited and as such have a personal knowledge of the matters herein contained.
2. THAT since the issuance of Rock Phosphate Prospecting Permits 1 to 18 inclusive, expenditures have been made on them by Hudson's Bay Oil and Gas Company Limited as follows:

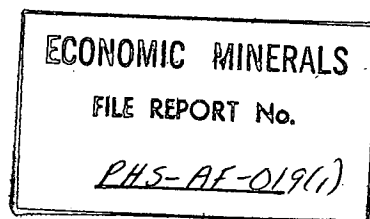
Salary & Wages	\$11,953.34
Trucking, Freight & Express	560.50
Material & Supplies	574.67
Printing & Reproduction	15.90
Repairs & Replacements	19.85
Services - General	175.00
Telephone	98.75
Automotive Expense	1,780.75
Aircraft Expense	35,918.08
Camp Expense	4,054.56
Miscellaneous	144.54
Equipment Rental	1,725.45
Travelling Expense	898.60
Overhead	4,923.20
	<u>\$62,843.19</u>

AND I HAVE TAKEN THIS SOLEMN DECLARATION conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of THE CANADA EVIDENCE ACT.

DECLARED before me at the City of Calgary )  
in the Province of Alberta, this 21<sup>st</sup> )  
day of June, A.D. 1966. )

  
A Commissioner for Oaths in and for the  
Province of Alberta





A number of phosphate permits were acquired by Hudson's Bay Oil and Gas Company Limited covering areas in the "Front Range" of the Alberta Rockies where phosphate occurrences have been reported. To conform to Alberta Government requirements a geological field party was organized in May, 1965 in order to:-

- (a) Carry out a preliminary examination of the area covered by the phosphate permits and locate any occurrences of phosphate.
- (b) Determine if the thickness, grade, and structural attitude of any deposits would justify economic exploitation.
- (c) Decide if further work such as mapping, trenching, and sampling is necessary to evaluate the deposits further.
- (d) Determine other areas that could be of economic interest where better conditions for the occurrence of commercial grade phosphate may exist.

The areas investigated are shown on Plate I and Maps P1, P2, P3, and P4, which show the location of each traverse.

The location of the phosphate permits held by Hudson's Bay Oil and Gas Company Limited was such that the Forestry Trunk road, which parallels the northwest trend of the Front Range from Coleman to Hinton could be utilized to transport men and equipment over the long distances between camp sites. Two, thirty-six foot trailers were employed as sleeping and dining quarters for the nine man crew. A car and truck were used to supply the camp and to move it and three men from one site to another. In order to speed up the work and to transport the men to less accessible outcrops, a helicopter was also employed.

Sections to be investigated were chosen on the basis of the portion of the formation exposed as well as the amount of exposure. Traverses were made noting any occurrences of phosphate, their thickness, approximate percent of phosphate in the unit and its relative position within the formation. Wherever possible phosphate units were traced laterally, noting any major changes of thickness and grade. An attempt was made to keep the traverses within 3 to 6 miles of each other.



The phosphate was generally located by visual examination but in doubtful cases the ammonium molybdate test was used as a check. In some cases this test was used as a crude indication of the amount of  $P_2O_5$  present in cherty nodules.

All occurrences of phosphate were described and sampled. Assays were run on a number of samples as a check on the  $P_2O_5$  and fluorine content.

Traverses are shown on the accompanying maps and a brief summary of the phosphate occurrences found is included in the appendix of this report.



F. A. Peel

A P P E N D I X

## Phosphate Occurrences in Alberta

The following is a list of traverses covered this summer and a brief summary of the phosphate located in that section. The locations of the traverses may be found on the accompanying maps.

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
1	Rocky Mtn.	Thin 2" - 5" sandstone bed with phosphatic cement about 30' - 40' from top of formation
	Spray River	No phosphate present
	Fernie	No phosphate present
2	Rocky Mtn.	Trace phosphate as cementing agent in upper part of formation
	Spray River	No phosphate present
	Fernie	Two thin 1"-2" sandstone units at base of formation show trace phosphate
3	Rocky Mtn.	1'-2' Quartz sandstone unit with phosphatic cement located 30' to 40' below top of formation
	Spray River	No phosphate present
4	Rocky Mtn.	No phosphate present
	Exshaw	Two 2' units near the top. Upper unit black pelletal, slightly siliceous. Two random samples assayed: a) $P_2O_5$ = 22.21% b) $P_2O_5$ = 19.24% The lower unit, separated from the upper one by 11' of black siliceous phosphatic shale is a black, cherty unit. Assayed: a) $P_2O_5$ = 8.76% b) $P_2O_5$ = 6.79%

TraverseFormationPhosphate Occurrences

5

Rocky Mtn.

Near the top of formation  
2'-3' of quartz sandstone with  
a slight phosphatic cement and  
the occasional phosphatic nodule  
scattered throughout. Phosphate  
less than 5%

Spray River

No phosphate present

Fernie

10" to 2.5' of quartz sandstone  
at base of formation with phosphatic  
nodules comprising up to 50% of  
unit. Representative sample assayed  
12.42%  $P_2O_5$

6

Exshaw

The two 2' bands seen at traverse  
4 are present and found repeated  
through faulting

7

Rocky Mtn.

Poor exposures, no phosphate found

Spray River

No phosphate

Fernie

Poor exposure, no phosphate located

8

Exshaw

One 4" unit of siliceous phosphorite  
near top

9

Fernie

Quartz sandstone found near base,  
phosphatic cement with occasional  
phosphate pellet. Probably the  
same unit as in traverse 5

10

Exshaw

One 2" to 3" nodular phosphate  
unit located near top

11

Rocky Mtn.

No phosphate located

Spray River

No phosphate located

Fernie

No phosphate located. Probable  
phosphate horizon covered

12

Rocky Mtn.

Sporadic occurrences of siliceous  
phosphate nodules in upper part  
of formation

Spray River

No phosphate present

Fernie

No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
13	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	Trace of phosphate in sandstone near base of formation
14	Exshaw	No phosphate present
	Fernie	No phosphate present
15	Spray River	No phosphate present
	Fernie	Near the base of the formation is a 3' sandstone unit containing 20% phosphate nodules (up to 1" in dia.) and 10% phosphatic bone material. Directly below this unit is a 1' thick quartz sandstone containing a phosphatic cement
16	Exshaw	No phosphate present
17	Spray River	No phosphate present
	Fernie	Poorly exposed - no phosphate noted
18	Rocky Mtn.	No phosphate present
	Spray River	1' sandstone containing 10% phosphate pellets developed near the top
	Fernie	No phosphate present
19	Rocky Mtn.	No phosphate noted
	Spray River	No phosphate noted
	Fernie	1.5' at base of formation with 0% to 80% phosphatic nodules and 0% to 10% phosphatic bone material
20	Rocky Mtn.	No phosphate present
	Spray River	Trace of phosphate in upper portion of formation as cement in a quartz sandstone
	Fernie	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
21	Rocky Mtn.	No phosphate noted, poor exposure
	Spray River	No phosphate noted, poor exposure
	Fernie	No phosphate noted, poor exposure
22	Rocky Mtn.	No phosphate present
x	Spray River	40' sandstone at top of formation containing trace phosphatic pellets and bone material. At base of formation 1' phosphatic conglomerate
	Fernie	No phosphate noted
23	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	No phosphate present
24 ✓	Fernie	Nodular phosphate (20%) found in float near base of formation
25	Rocky Mtn.	2 to 3 inches of calcareous sandstone with phosphatic nodules (10%) near top
26	Exshaw	No phosphate present
27	Spray River	No phosphate present
	Fernie	No phosphate present
28	Exshaw	No phosphate present
29	Rocky Mtn.	No outcrop
	Spray River	No phosphate present
	Fernie	No phosphate, poor outcrop
30	Spray River	6' band of phosphatic sandstone about 100' from top of formation. Trace of phosphatic fish fragments
	Fernie	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
31	Spray River	No phosphate present
4-31	Fernie	Basal Fernie contains 1' to 2' sandstone with 10% - 15% phosphatic nodules and 5% phosphatic bone material
4-32 32	Rocky Mtn.	1' thick phosphatic conglomerate near the formation top with 10% - 20% phosphatic pebbles
4-33	Spray River	10' - 15' phosphatic quartz sandstone with trace pellets and bone material 100' from top
4-34	Fernie	6' zone at base with 10% phosphatic nodules. 1" to 2" of shale in middle of formation shows trace of phosphate
33	Exshaw	No phosphate present
	Fernie	No phosphate present
34	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	Occasional phosphate nodule in shale at base of formation. Thin 1" to 2" unit of phosphatic shale in middle of formation
35	Exshaw	No phosphate present
36	Exshaw	No phosphate present
37	Rocky Mtn.	Upper 10' contains scattered lenses of phosphatic nodules
	Spray River	Poor exposure - no phosphate located
	Fernie	No phosphate present
38	Rocky Mtn.	Top of formation contains two 2' bands of phosphatic nodules separated by 10' of slight calcareous quartzite. Nodules comprise 30% of the units. Fair amount of fluorite present
	Spray River	No phosphate present
	Fernie	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
39	Exshaw	No phosphate present
40	Rocky Mtn.	The two units of Traverse 38 are present. The upper unit increased to 3.5' in thickness while the lower unit thinned to one foot
	Spray River	No phosphate present
	Fernie	Covered - no phosphate located
41	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	No phosphate present
42	Spray River	No phosphate present
	Fernie	No phosphate present
43	Exshaw	No phosphate present
44	Exshaw	No phosphate present
45	Fernie	Lower 10' contains trace of pellets and oolites
46	Rocky Mtn.	Two 6" units of nodular phosphate (50% ore rock) at top of formation
	Spray River	150' from the top 1' to 2' dark grey sandstone with phosphate in cement
	Fernie	Trace of phosphatic nodules in float but position in section uncertain
47	Fernie	30 feet from the base 1' to 5' siltstone containing 15% phosphatic pellets
48	Rocky Mtn.	No phosphate present
	Spray River	Trace of phosphate in upper part of formation
	Fernie	Scattered phosphate nodules in thin shale unit near base of formation



TraverseFormationPhosphate Occurrences

49

Fernie

6" of calcareous sandstone containing 15% nodules at base of formation. About 80' below the top of the Fernie there is a 6' thick siltstone with 10-15% pellets scattered throughout

50

Rocky Mtn.

a 4' sandstone unit with scattered phosphate nodules located at the top of the formation

Spray River

100' below the top is a thin sandstone unit with a trace of phosphate and phosphatic fossil material

51

Fernie

No phosphate present

52

Rocky Mtn.

No phosphate present

Spray River

15' - 20' of grey sandstone with phosphatic cement - located 150' from base of formation

Fernie

Trace phosphatic nodules just above the basal coquina bed

53

15

Fernie

No phosphate present

54

Rocky Mtn.

5' to 6' band of grey quartz sandstone at top of formation containing 50% phosphate nodules becoming concentrated to 80% in places. 15' below the upper unit is a 3' phosphate unit with 70% to 80% nodules. Unit is high in fluorite

55

Exshaw

No phosphate present

56

Rocky Mtn.

A 3' nodular phosphorite is located at the top containing 60% - 70% nodules. A second unit is present 15' below the upper unit, containing 80% nodules but nodules are very siliceous and are of low grade

Spray River

No phosphate present

57

Exshaw

No phosphate present

58

Exshaw

No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
59	Exshaw	No phosphate present
60	Exshaw	No phosphate present
61	Rocky Mtn.	No phosphate present
62	Exshaw	No phosphate present
63	Rocky Mtn.	6" phosphatic unit at top containing 15% to 80% phosphatic nodules
64	Rocky Mtn.	2' conglomeratic unit at top of formation that is slightly phosphatic
	Spray River	Trace of phosphate in sandstone located in middle of formation
	Fernie	No phosphate present
65	Exshaw	No phosphate present
66	Exshaw	No phosphate present
67	Exshaw	No phosphate present
68	Rocky Mtn.	Three units: a) at top of formation 2' to 3' phosphatic nodules averaging 60%, siliceous, b) 1' band of bluish siliceous phosphatic quartzite 15' below first unit, c) 20' to 30' below second unit is a 1' band of quartzite containing a trace of phosphate
	Spray River	Trace of phosphate in a thin sandstone unit in middle of formation
	Fernie	Trace of phosphatic nodules found in float near base of formation
69	Spray River	2" phosphatic sandstone 40' from base, low in phosphate content
70	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
71	Exshaw	No phosphate present
72	Fernie	No phosphate present
x 73	Rocky Mtn.	Phosphatic nodules and pellets comprise about 10% of a 6' con- glomerate near top of formation
74	Fernie	No phosphate present
75	Rocky Mtn.	No phosphate present
	Spray River	1' sandstone unit at base with phosphatic cement
76	Exshaw	No phosphate present
77	Rocky Mtn.	No phosphate present
	Spray River	Basal Spray River contains a few feet of sandstone with phosphatic cement
78	Spray River	Trace of phosphate near base
	Rocky Mtn.	No phosphate
79	Rocky Mtn.	Phosphate in cement of quartz sandstone, 1.5' thick
	Spray River	No phosphate present
80	Rocky Mtn.	No phosphate present
	Spray River	Trace of phosphate in sandstone 40' to 50' below top of formation
	Fernie	Trace of nodules near the base of the formation
81	Exshaw	No phosphate present
82	Rocky Mtn.	No phosphate present
	Spray River	Only traces in the sandstone 50' from top (fish fragments)
	Fernie	10 - 15' grey brown calcaeous sandstone containing phosphatic nodules and belemnites (10%) - Nodules are 4" - 6" in diameter and appear to consist of pellets

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
83	Exshaw	No phosphate present
(84	Rocky Mtn.	No phosphate present
	Spray River	Trace of phosphatic cement in sandstone, 40' to 50' below top of formation
	Fernie	Trace at top of formation in the form of nodules
85	Exshaw	No phosphate present
(86	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	Trace of phosphate in the lower Fernie
87	Rocky Mtn.	Upper 20' to 30' of quartzite sandstone contains trace of phosphate in cement
	Spray River	Scattered traces of phosphate in middle of formation
88	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	Trace of phosphate in quartzite sandstone about 100' below the formation top
89	Exshaw	No phosphate present
	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
90	Nikanassin	No phosphate present
91	Fernie	1" band nodular phosphate near base
92	Fernie	Sandstone at base with phosphatic cement. Thickness undetermined
93	Rocky Mtn.	8" Quartz sandstone with 30% phosphatic nodules at base of formation
	Spray River	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
94	Exshaw	No phosphate present
95	Fernie	No phosphate present
96	Exshaw	No phosphate present
	Rocky Mtn.	Top 5' of quartzite tested, trace of phosphate
	Spray River	Trace of phosphate in fish scale sandstone
	Fernie	Quartzitic sandstone unit 2' - 3' thick with phosphatic nodules and belemnites, probably less than 5% located 15' from formation top
97	Rocky Mtn.	A 20' cherty quartzite unit just below the top of the formation which contains a trace of phosphate near the base of unit was found a few scattered nodules
	Spray River	At the top of the Sulphur Mtn. member a 2' thick bed of sandstone with phosphatic cement
	Fernie	No phosphate present
98	Exshaw	No phosphate present
99	Fernie	In basal 20' were found 2 - 2' units of pelletal (25-35%) phosphate in a calcareous siltstone
100	Exshaw	No phosphate present
101	Rocky Mtn.	6" unit of siliceous phosphatic nodules (20%) at base of formation
102	Exshaw	No phosphate present
103	Exshaw	No phosphate present
104	Fernie	Poor exposure - no phosphate found
105	Fernie	Basal 1' is phosphatic unit containing 10% - 30% pellets and nodules
106	Exshaw	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
107	Spray River	8' - 9' at top of which the lower 6' is a quartz sandstone with 15% phosphatic oolites. In the lower 3' the pellets may be concentrated to as high as 70% in lenses the upper 3' contains 10% oolites scattered throughout a silty limestone
108	Rocky Mtn.	No phosphate present
	Spray River	Trace of phosphate in cement near top of formation
	Fernie	Poor exposure - trace of phosphate in upper 100' of shales
109	Spray River	Phosphatic unit described in Traverse 107 present but outcrop was poor and it appeared as though percentage of oolites were lower
	Fernie	3 1/2" at base of formation phosphorites with 60% pellets with calcareous cement
110	Exshaw	No phosphate present
111	Spray River	Only traces of phosphate found. Poor outcrops Spray River almost completely covered
112	Exshaw	No phosphate present
X 113 4-13 11	Spray River	3 bands of pelletal phosphorite over 8.5' - 7", 4" and 7" thick, with calcareous sandstone with 10% to 15% pellets between phosphorite beds at the top of the Sulphur Mountain member
114	Exshaw	No phosphate present
	Banff	No phosphate present
	Rocky Mtn.	10' to 12' slightly calcareous sandstone with phosphatic cement in middle of formation
	Spray River	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
X 115 41.5	Spray River	At the top of the Sulphur Mtn. there is 12' of interbedded sandstone and shales with phosphate pellets scattered throughout. The pellets constitute about 10% to 15% of the rock, but in a few thin stringers (6") the pelletal content is as high as 60% and 70%
116	Exshaw	No phosphate present
	Banff	No phosphate present
	Rocky Mtn.	No phosphate present
	Spray River	No phosphate present
	Fernie	6' sandstone unit at the base with minor amounts of phosphate nodules
117	Spray River	Thin 6" lenticular sandstone unit with trace of phosphate
118	Rocky Mtn.	Sporadic traces of phosphate
8	Spray River	Sandstone with phosphatic cement and fish remains 50' from top
119	Spray River	No phosphate present
120	Spray River	No phosphate present
	Fernie	Lower 100' contain sporadic occurrences of phosphate nodules
121	Rocky Mtn.	Thin 1" phosphate nodule (10%-15%) bed at base
	Spray River	No phosphate
122	Banff	No phosphate present
	Spray River	Basal unit contains 3' quartz sandstone with minor trace of siliceous phosphate nodules
	Fernie	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
123	Banff	No phosphate present
	Exshaw	No phosphate present
124	Spray River	A few phosphatic nodules located in a 6" sandstone unit at the base
	Fernie	Trace of phosphate in the Nordegg member, a thin sandstone, 20' from top of Fernie contains a few nodules and belemnites
125	Fernie	No phosphate present
126✓	Fernie	Sandstone 20' from top, 1.5' thick, containing up to 50% phosphate nodules
127	Fernie	Poor exposure - no phosphate located
128✓	Spray River	At base of formation 1.5' coarse grained sandstone with 10-15% phosphate pellets
	Fernie	Trace of phosphatic nodules in shales of upper Fernie over 10' interval, occasional nodule noted in this sandstone unit 20' to 30' from top
129	Fernie	Poor exposure - no phosphate noted
130	Spray River	2" to 3" pelletal phosphate unit (40%) pellets in a quartzite matrix in middle of Whitehorse member
131	Rundle	No phosphate present
132	Spray River	1" to 2" conglomerate with phosphatic cement at base of formation. In the middle of the Whitehorse member three 1" bands with phosphate pellets varying from 40% to 70%
	Fernie	No phosphate present
133	Fernie	Covered - no phosphate present
134	Spray River	As in Traverse 132



<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
135	Spray River	No phosphate present
	Fernie	Trace phosphate nodules 20'-30' from top in sandstone, belemnites also present
136	Spray River	1 to 2" sandstone with minor traces of phosphate pellets located 30' from top of Whitehorse member
	Fernie	Scattered phosphate pellets near top of Nordegg member
137	Spray River	No phosphate present
	Fernie	No phosphate present
138	Spray River	Five thin 1" to 2" bands of pelletal phosphate 100' from top, pellets vary from 10% to 70% - interbedded with a quartz sandstone
	Fernie	No phosphate present
139	Exshaw	No phosphate present
	Spray River	Basal unit 6" thick conglomerate with 10% phosphatic pellets
X4	Fernie	20' at base of the formation containing sandstone lenses with 20% phosphate pellets
140	Spray River	Trace of phosphate 400' above the base
141	Spray River	1/4" band phosphorite at base of Sulphur Mtn. member
	Fernie	No phosphate present
142	Spray River	As in Traverse 140
	Fernie	No phosphate present
143	Spray River	Trace of phosphate near the base
	Fernie	No phosphate present

<u>Traverse</u>	<u>Formation</u>	<u>Phosphate Occurrences</u>
145	Spray River	No phosphate present
	Fernie	No phosphate present
147	Spray River	Poor exposure - no phosphate located
	Fernie	No phosphate present
149	Spray River	100' from the base of the Whitehorse member is a 20' sandstone unit with 5% - 10% pelletal phosphate
151	Spray River	Sandstone with 15% to 20% phosphate pellets found in float near base of formation. Unit not more than 6" thick.
153	Spray River	No phosphate present
	Fernie	Poor exposure - no phosphate present

LIST OF ASSAYS

<u>SAMPLE NO.</u>	<u>TRAVERSE</u>	<u>%P<sub>2</sub>O<sub>5</sub></u>	<u>% F</u>	<u>FEET REPRESENTED</u>	<u>FORMATION</u>
1504	4	22.21	1.64	Grab Sample	Exshaw
1505	4	19.24	1.83	Grab Sample	Exshaw
1506	4	8.76	0.23	Grab Sample	Exshaw
1507	4	6.97	0.31	Grab Sample	Exshaw
1508	3	0.18	0.27	Grab Sample	Fernie
1509	3	2.90	0.27	Grab Sample	Fernie
1510	5	12.42	--	<u>2.5'</u>	Fernie
1511	40	6.12	--	0.5'	Rocky Mtn.
1512	40	10.57	1.52	2.0'	Rocky Mtn.
1513	40	8.46	--	0.5'	Rocky Mtn.
1515	115	3.13	--	1.4'	Spray R.
1516	115	8.29	--	0.5'	Spray R.
1517	115	15.43	Tr.	0.2'	Spray R.
1518	115	17.35	--	1.4'	Spray R.
1519	115	13.07	--	2.0'	Spray R.
1520	115	15.49	Tr.	0.6'	Spray R.
1521	115	24.46	Tr.	"Float Rock"	Spray R.

Assays of samples were run by Atlas Testing in Edmonton.

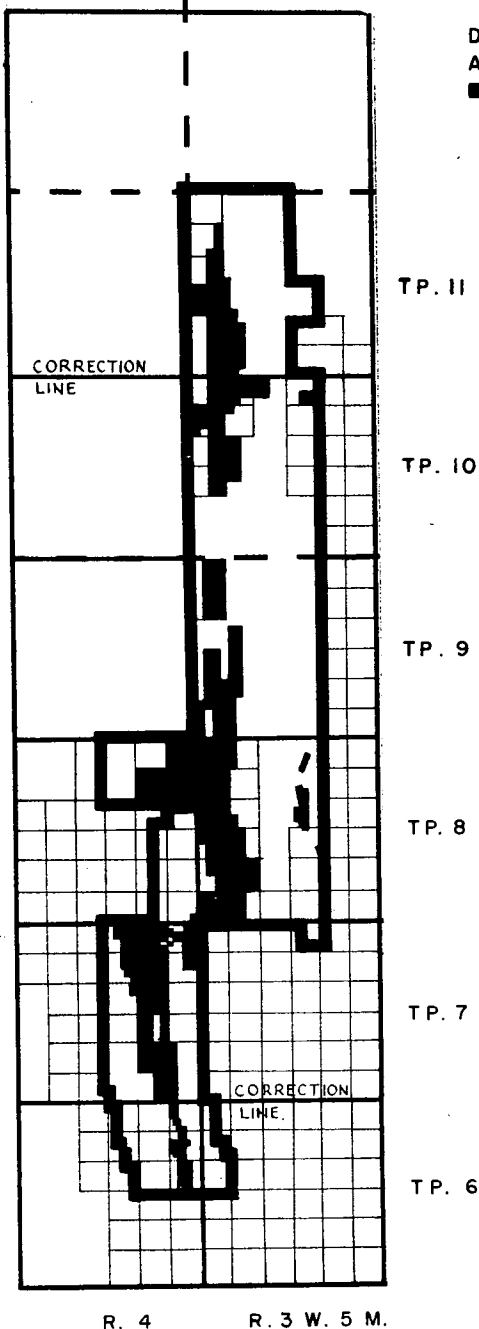
19650001

# ROCK PHOSPHATE PROSPECTING PERMIT NO. 1

[826/8+9+16]

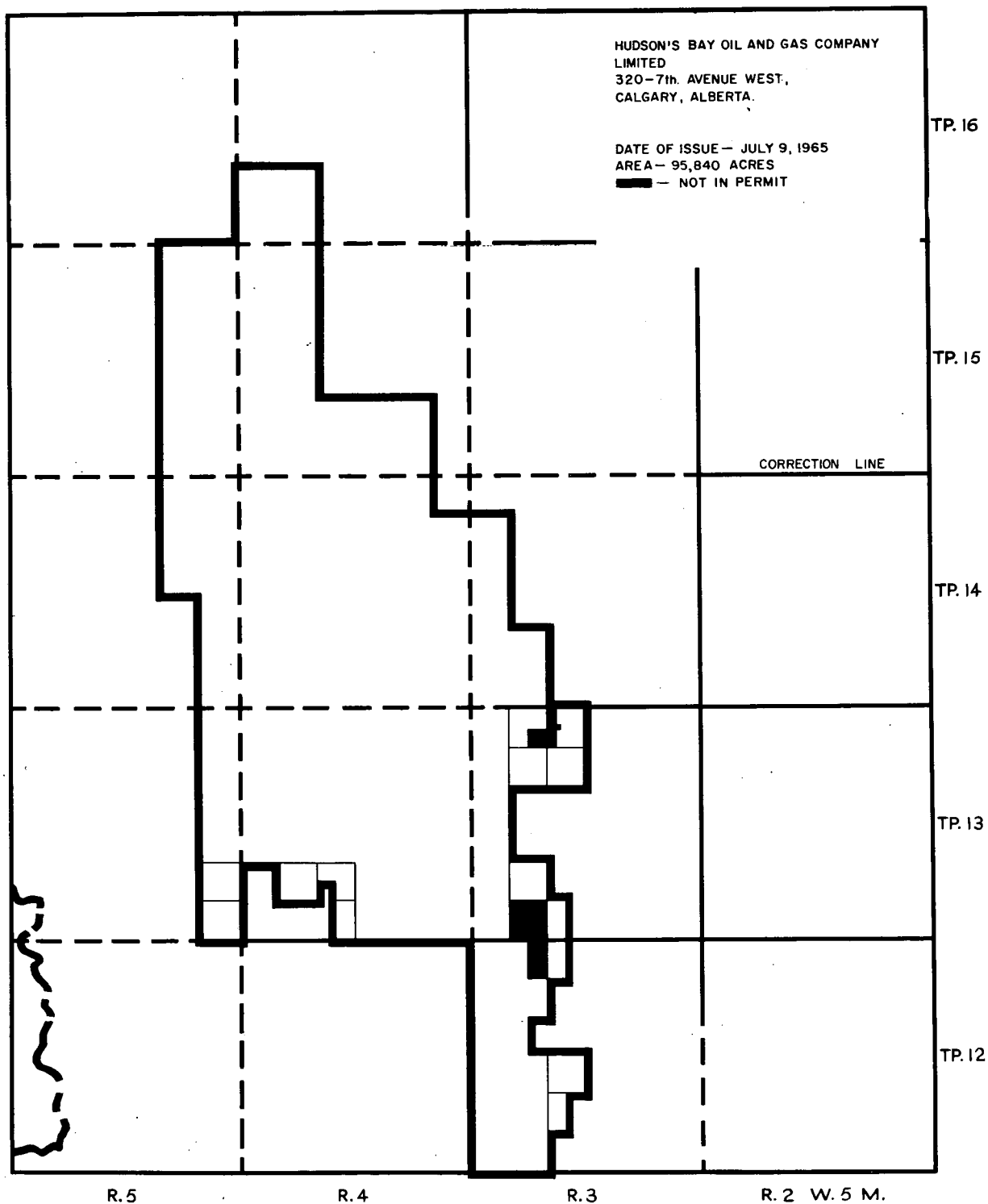
HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE-JULY 9, 1965  
AREA-59,822 ACRES  
■ - NOT IN PERMIT



1965 0001

ROCK PHOSPHATE PROSPECTING PERMIT NO. 2



82G/15

and

82J/1+2+7+8

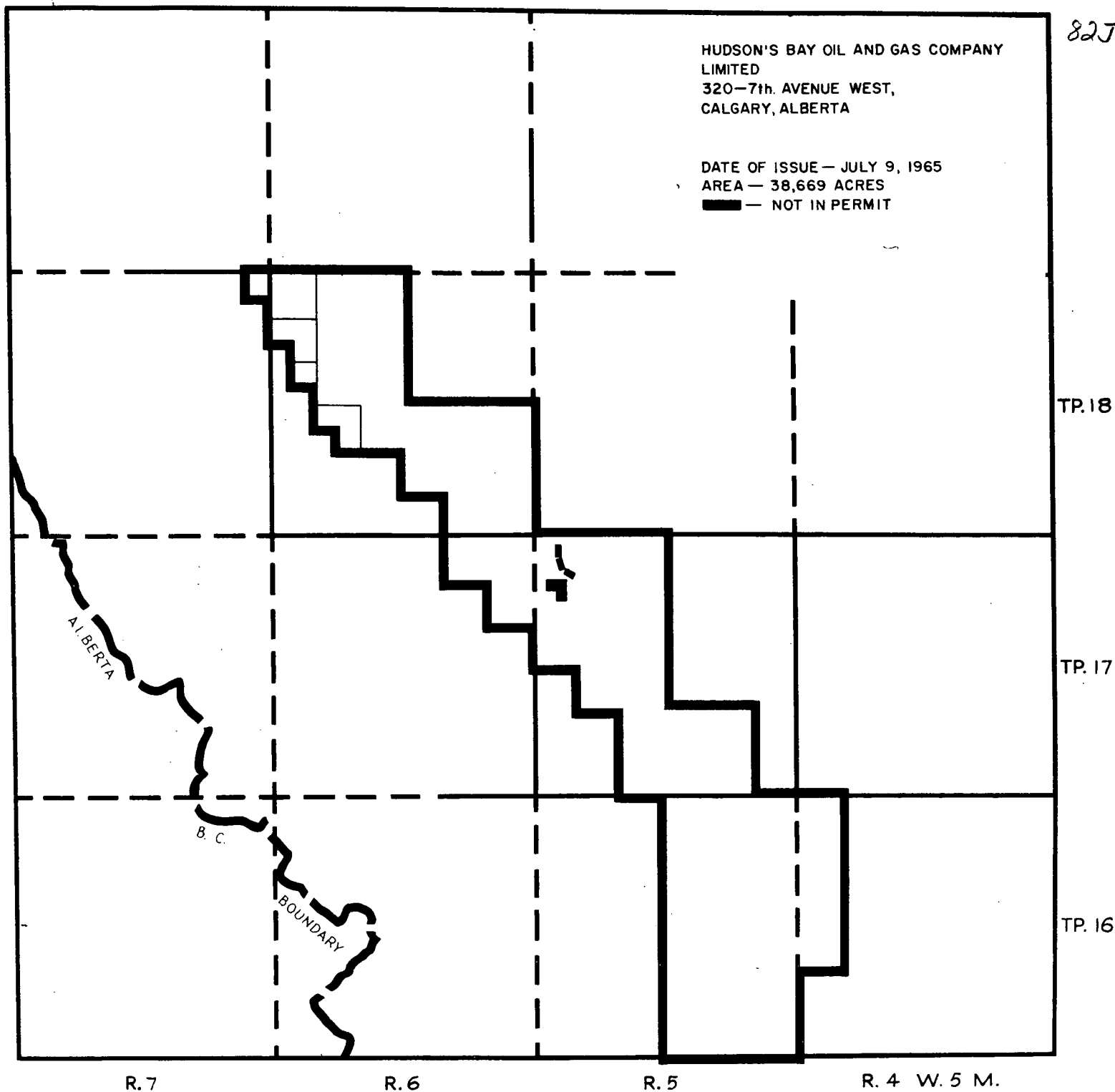
1965 0001

## ROCK PHOSPHATE PROSPECTING PERMIT NO. 3

82J/7+10

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST,  
CALGARY, ALBERTA

DATE OF ISSUE — JULY 9, 1965  
AREA — 38,669 ACRES  
— NOT IN PERMIT



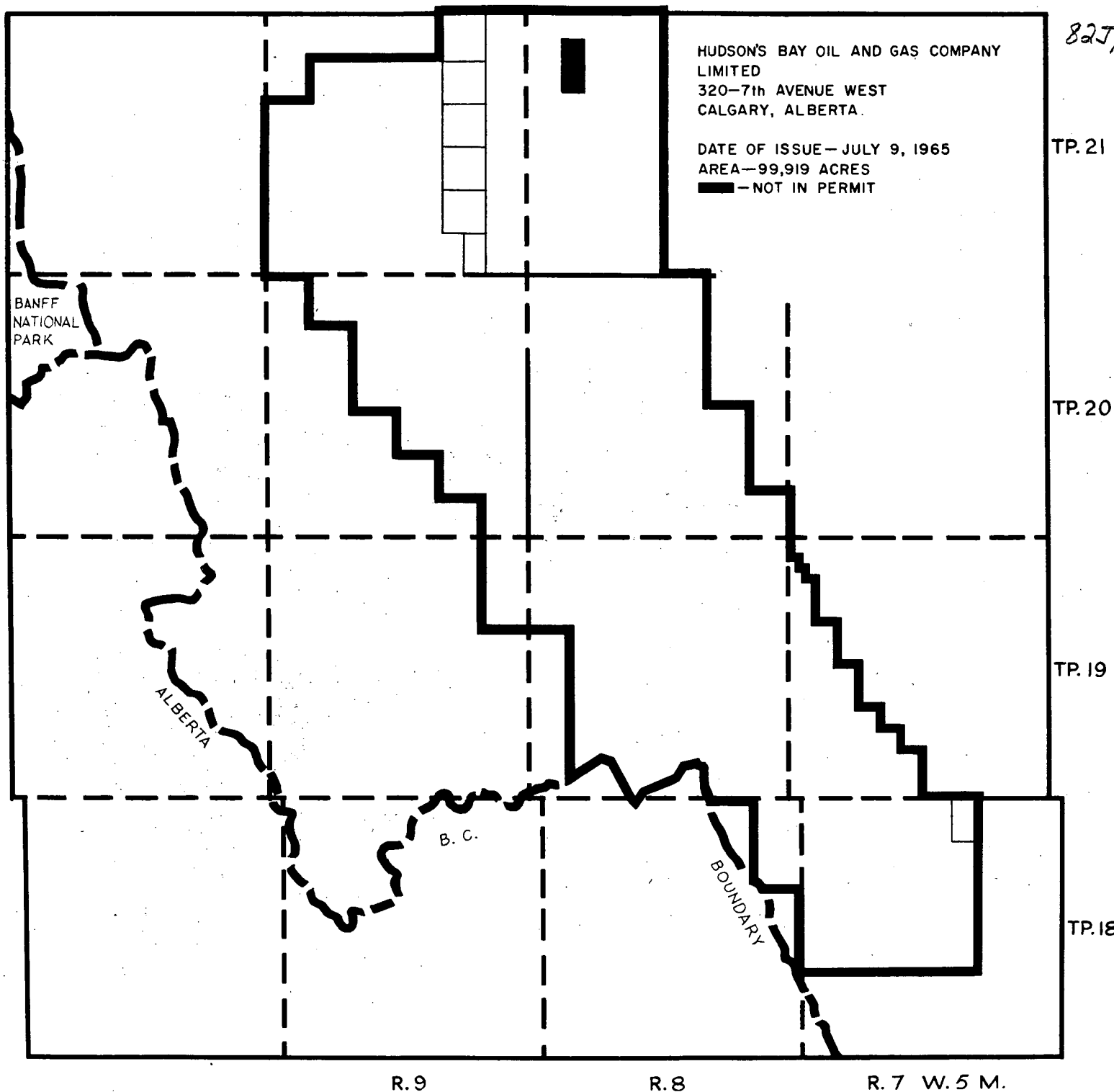
1965 0001

## ROCK PHOSPHATE PROSPECTING PERMIT NO. 4

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA.

DATE OF ISSUE—JULY 9, 1965  
AREA—99,919 ACRES  
■ — NOT IN PERMIT

82J/10+11+  
14+15



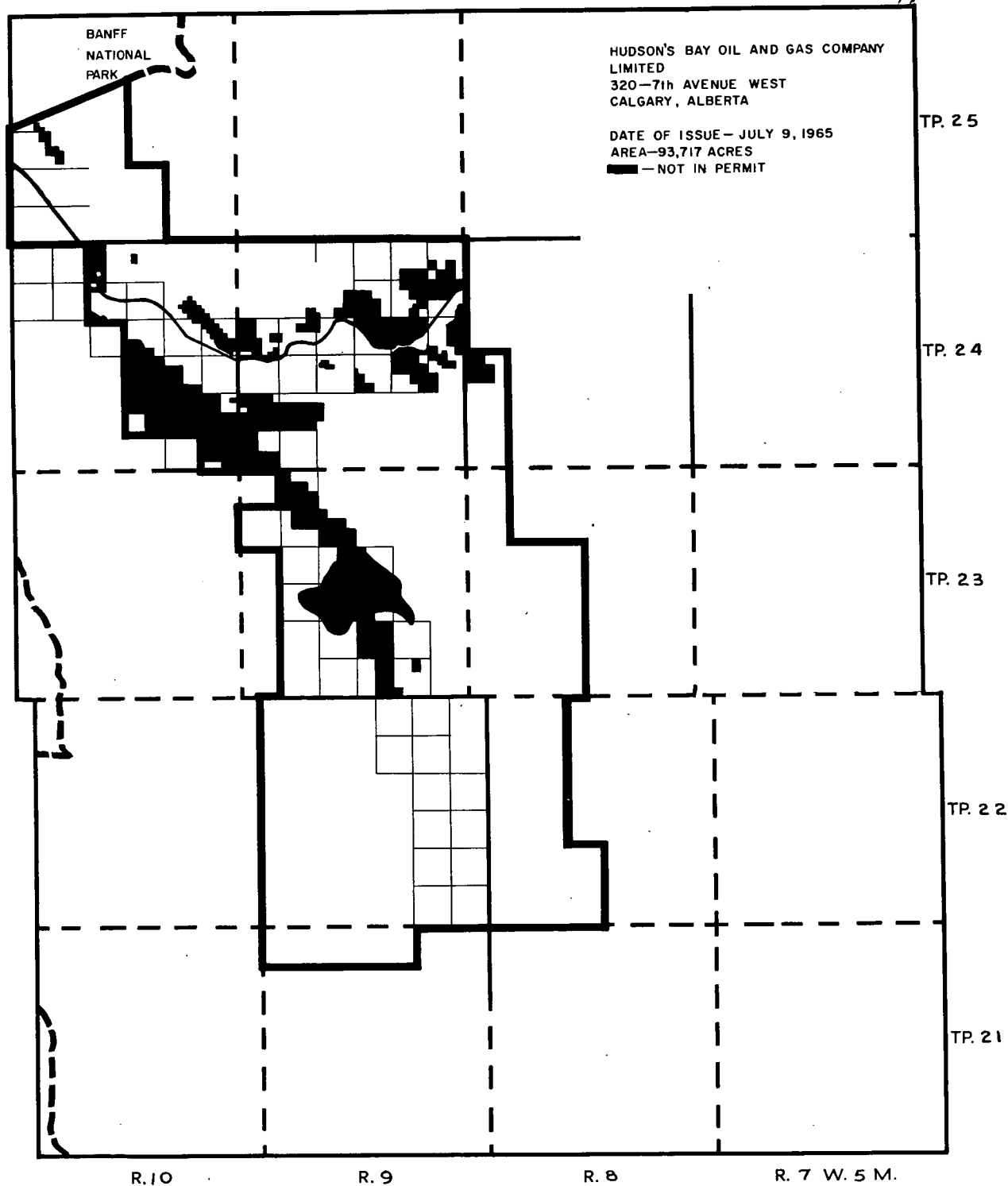
19650001

825/14

and

820/3

ROCK PHOSPHATE PROSPECTING PERMIT NO. 5





ROCK PHOSPHATE PROSPECTING PERMIT NO. 6

19650001

820/3

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE—JULY 9, 1965  
AREA—29,198 ACRES

BANFF

NATIONAL

PARK

TP. 26

TP. 25

TP. 24

R. 10

R. 9

R. 8 W. 5 M.

ROCK PHOSPHATE PROSPECTING PERMIT NO. 7

19650001

820/14

and

83B/3+4

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE-JULY 9, 1965  
AREA-79,853 ACRES

TP. 35

TP. 34

TP. 33

R. 11

R. 10

R. 9 W. 5 M.

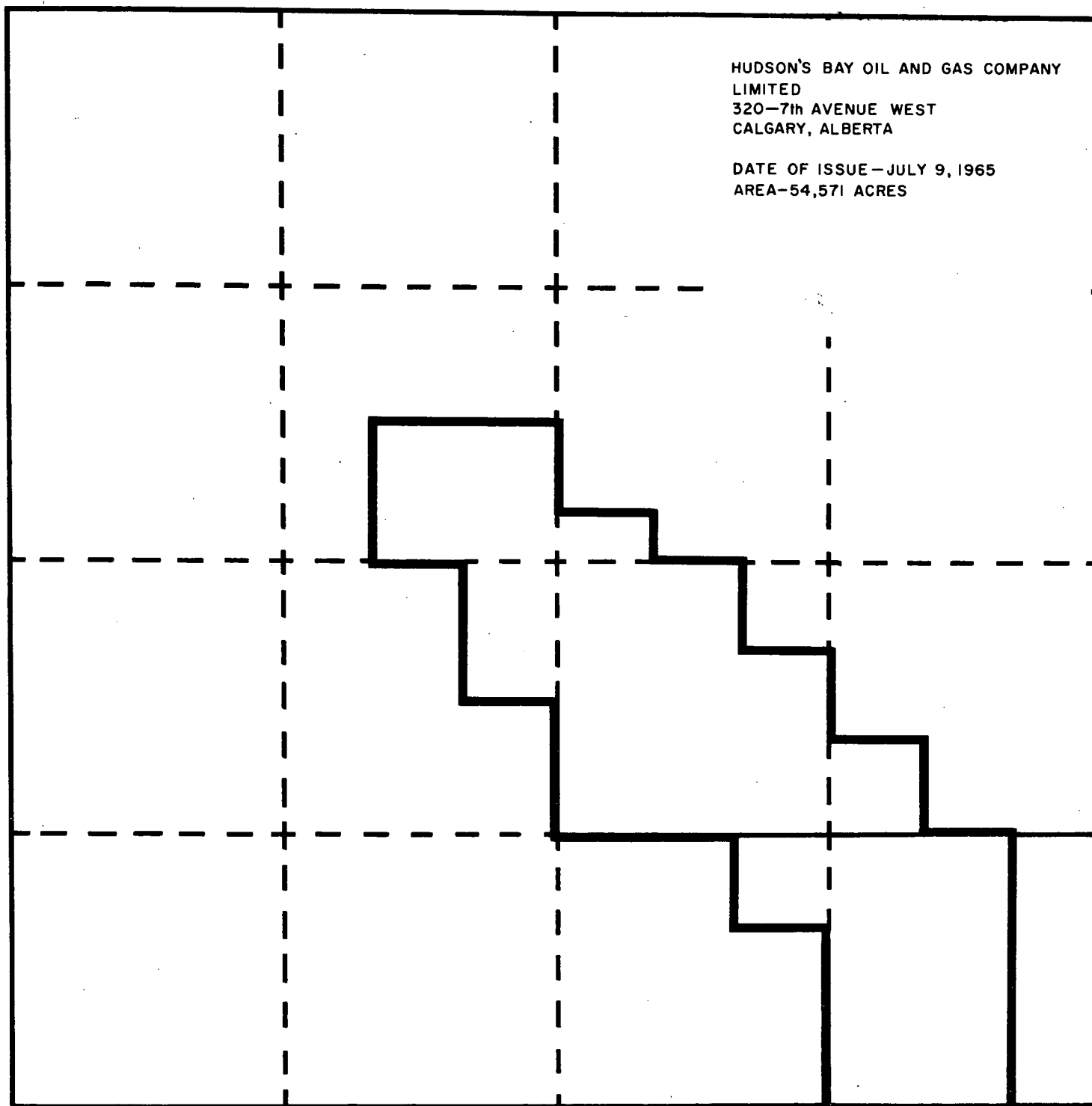
ROCK PHOSPHATE PROSPECTING PERMIT NO. 8

19650001

83B/3+4+5

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE-JULY 9, 1965  
AREA-54,571 ACRES



R. 12

R. 11

R. 10 W. 5 M.

TP. 38

TP. 37

TP. 36

19650001  
ROCK PHOSPHATE PROSPECTING PERMIT NO. 9

826/13  
and  
82N/16

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE—JULY 9, 1965  
AREA—99,558 ACRES

and  
83B/4  
and  
TP. 37  
83C/1

TP. 36

TP. 35

TP. 34

R. 15

R. 14

R. 13 W. 5 M.

# ROCK PHOSPHATE PROSPECTING PERMIT NO. 10

19650001

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE—JULY 9, 1965  
AREA—78,206 ACRES  
■—NOT IN PERMIT

83B/5+12

and

83C/8+9

TP. 41

TP. 40

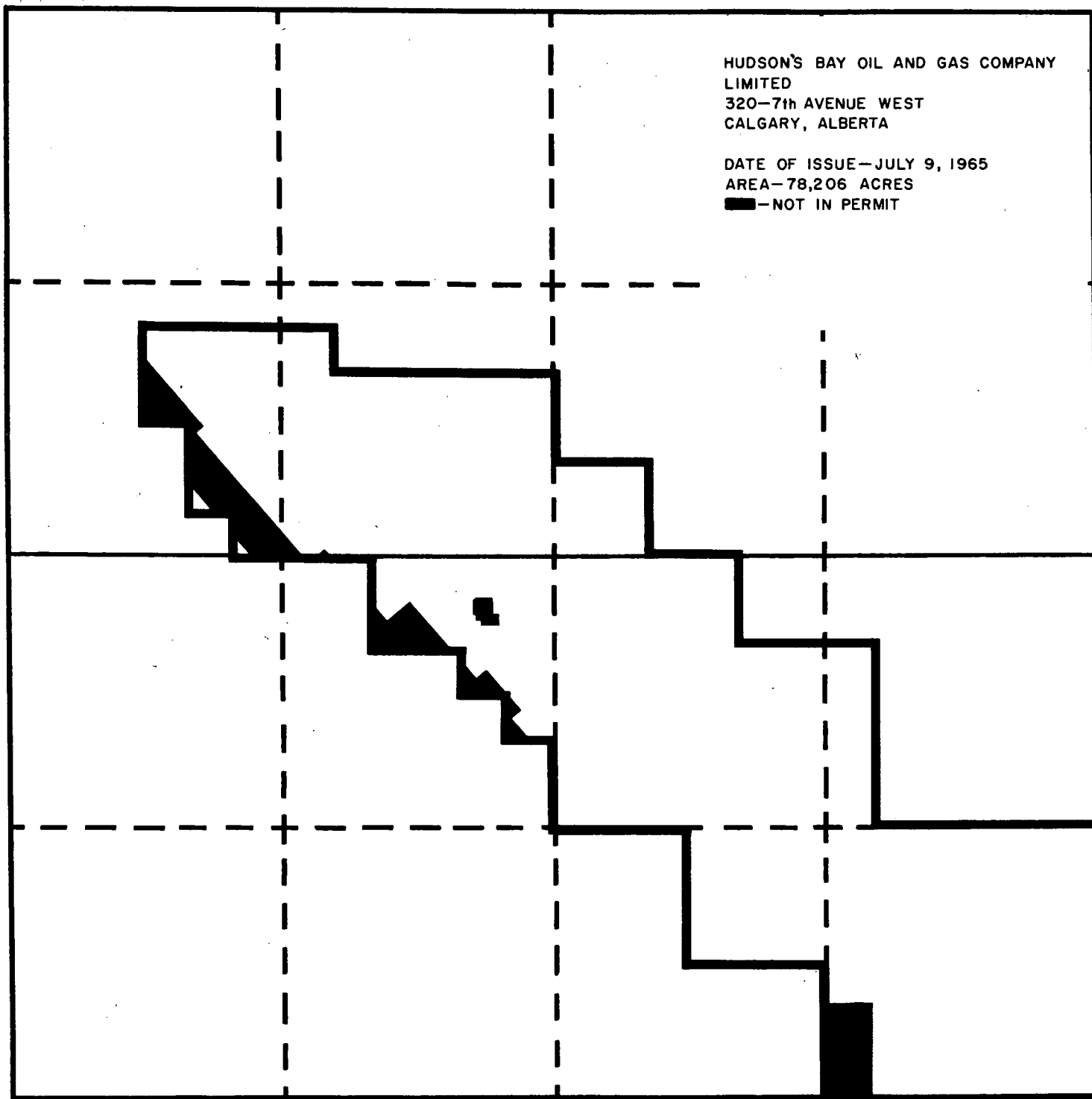
TP. 39

R. 16

R. 15

R. 14

R. 13 W. 5 M.



19650001  
ROCK PHOSPHATE PROSPECTING PERMIT NO. II

82N/16

and  
83C/1

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE—JULY 9, 1965  
AREA—97,339 ACRES

TP. 37

TP. 36

TP. 35

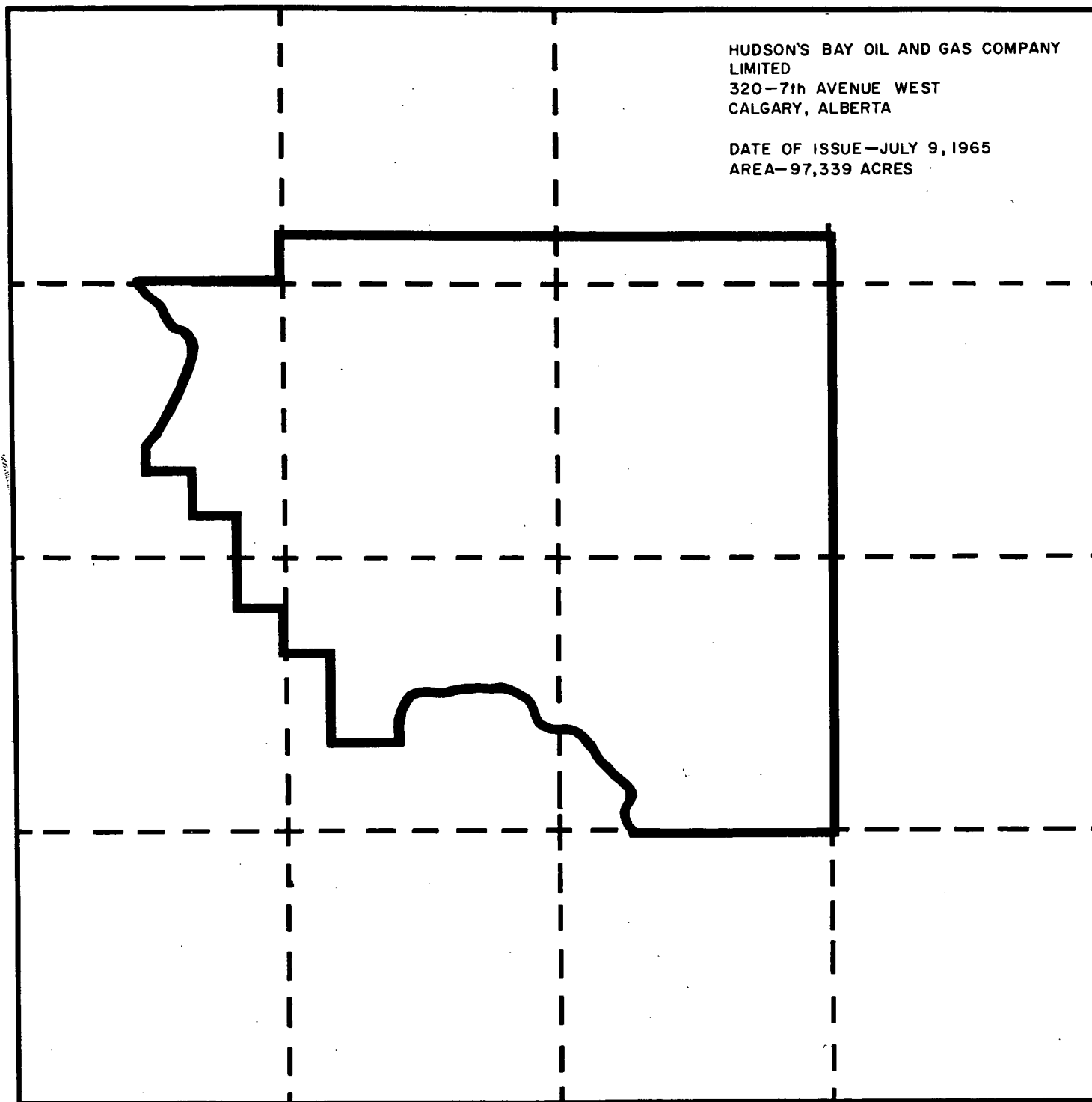
TP. 34

R. 18

R. 17

R. 16

R. 15 W. 5 M.



ROCK PHOSPHATE PROSPECTING PERMIT NO. 12

19650001

83C/11+2+7+8

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE—JULY 9, 1965  
AREA—95,683 ACRES

TP. 39

TP. 38

TP. 37

TP. 36

R. 18

R. 17

R. 16 W. 5 M.

ROCK PHOSPHATE PROSPECTING PERMIT NO. 13

19650001

83C/7+8+  
9+10

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED  
320-7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE—JULY 9, 1965  
AREA—52,203 ACRES

TP. 42

TP. 41

TP. 40

TP. 39

R. 19

R. 18

R. 17

R. 16 W. 5 M.



ROCK PHOSPHATE PROSPECTING PERMIT NO. 14

19650001

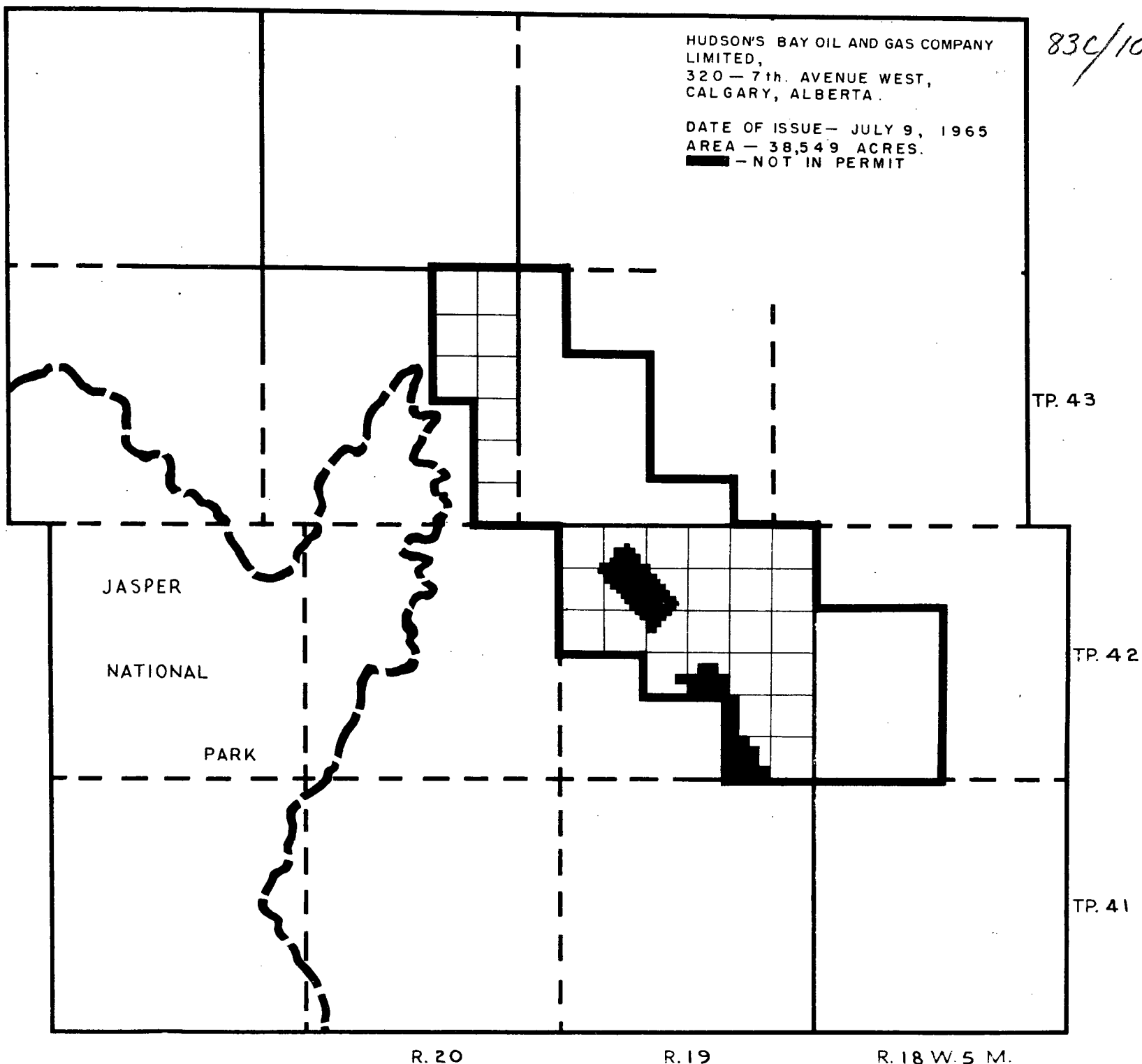
83C/10

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED,  
320 - 7th. AVENUE WEST,  
CALGARY, ALBERTA.

DATE OF ISSUE - JULY 9, 1965

AREA - 38,549 ACRES.

■ - NOT IN PERMIT



## ROCK PHOSPHATE PROSPECTING PERMIT NO. 15

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED,  
320-7th. AVENUE WEST,  
CALGARY, ALBERTA.

DATE OF ISSUE - JULY 9, 1965  
AREA - 26,281 ACRES.

83C/7

TP. 40

TP. 39

TP. 38

R. 19

R. 18 W. 5 M.

# ROCK PHOSPHATE PROSPECTING PERMIT NO. 16

19650001

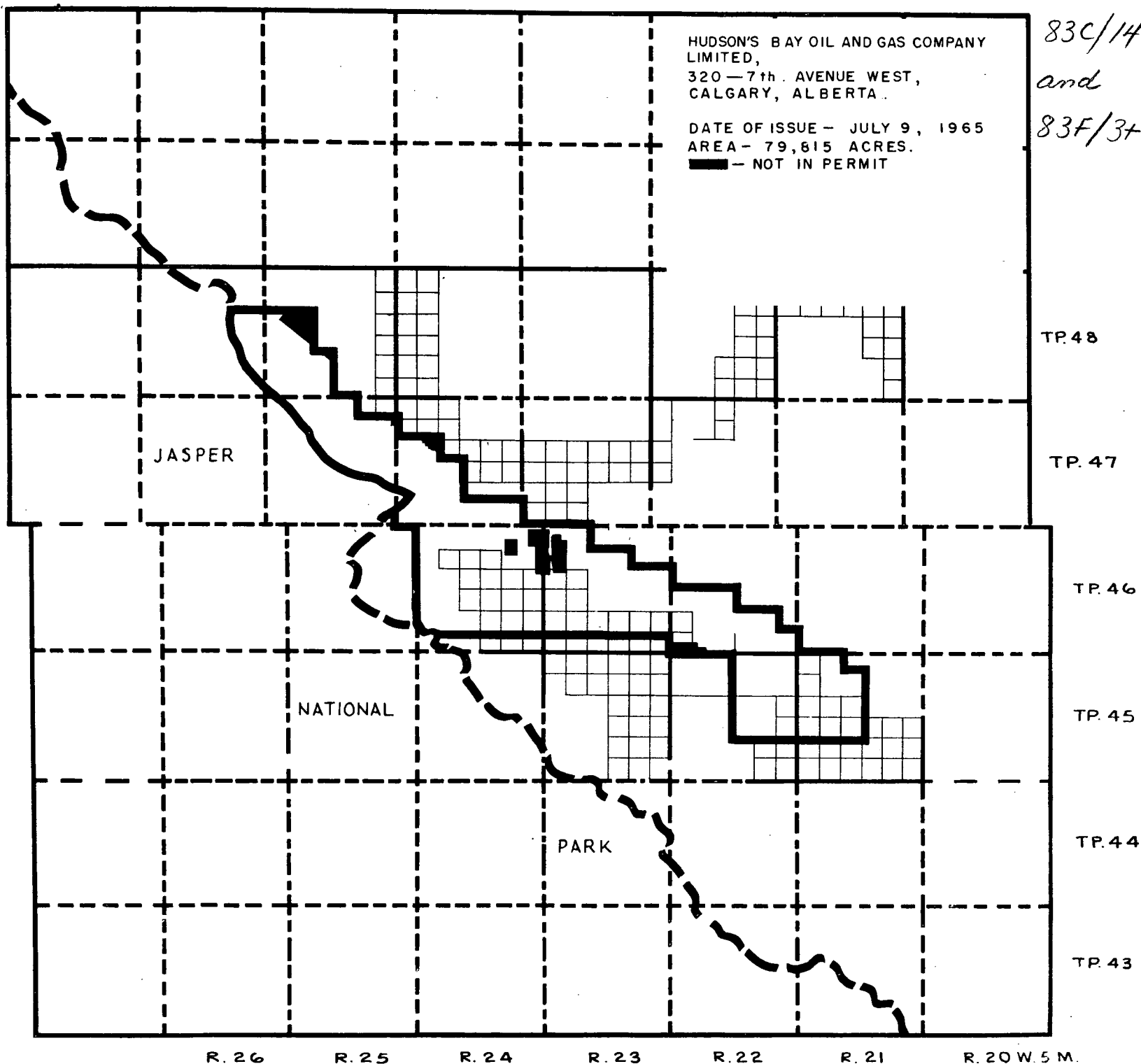
HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED,  
320-7th AVENUE WEST,  
CALGARY, ALBERTA.

DATE OF ISSUE - JULY 9, 1965  
AREA - 79,815 ACRES.  
— NOT IN PERMIT

83C/14

and

83F/3+4



# ROCK PHOSPHATE PROSPECTING PERMIT NO. 17

1965 0001

83F/4+5

HUDSON'S BAY OIL AND GAS COMPANY  
LIMITED,  
320 - 7th. AVENUE WEST,  
CALGARY, ALBERTA,

DATE OF ISSUE - JULY 9, 1965

AREA - 37,897 ACRES.

■ - NOT IN PERMIT.

MERIDIAN

6th.

JASPER

NATIONAL

PARK

TP. 51

TP. 50

TP. 49

R. 1 W. 6 M.

R. 28

R. 27

R. 26 W. 5 M.

ROCK PHOSPHATE PROSPECTING PERMIT NO. 18

19650001

83E/8+9

HUDSONS BAY OIL AND GAS COMPANY  
LIMITED,  
320 - 7th AVENUE WEST  
CALGARY, ALBERTA

DATE OF ISSUE - JULY 9, 1965  
AREA - 70,822 ACRES.

TP. 52

TP. 51

TP. 50

JASPER

CORRECTION LINE

NATIONAL

PARK

R. 2

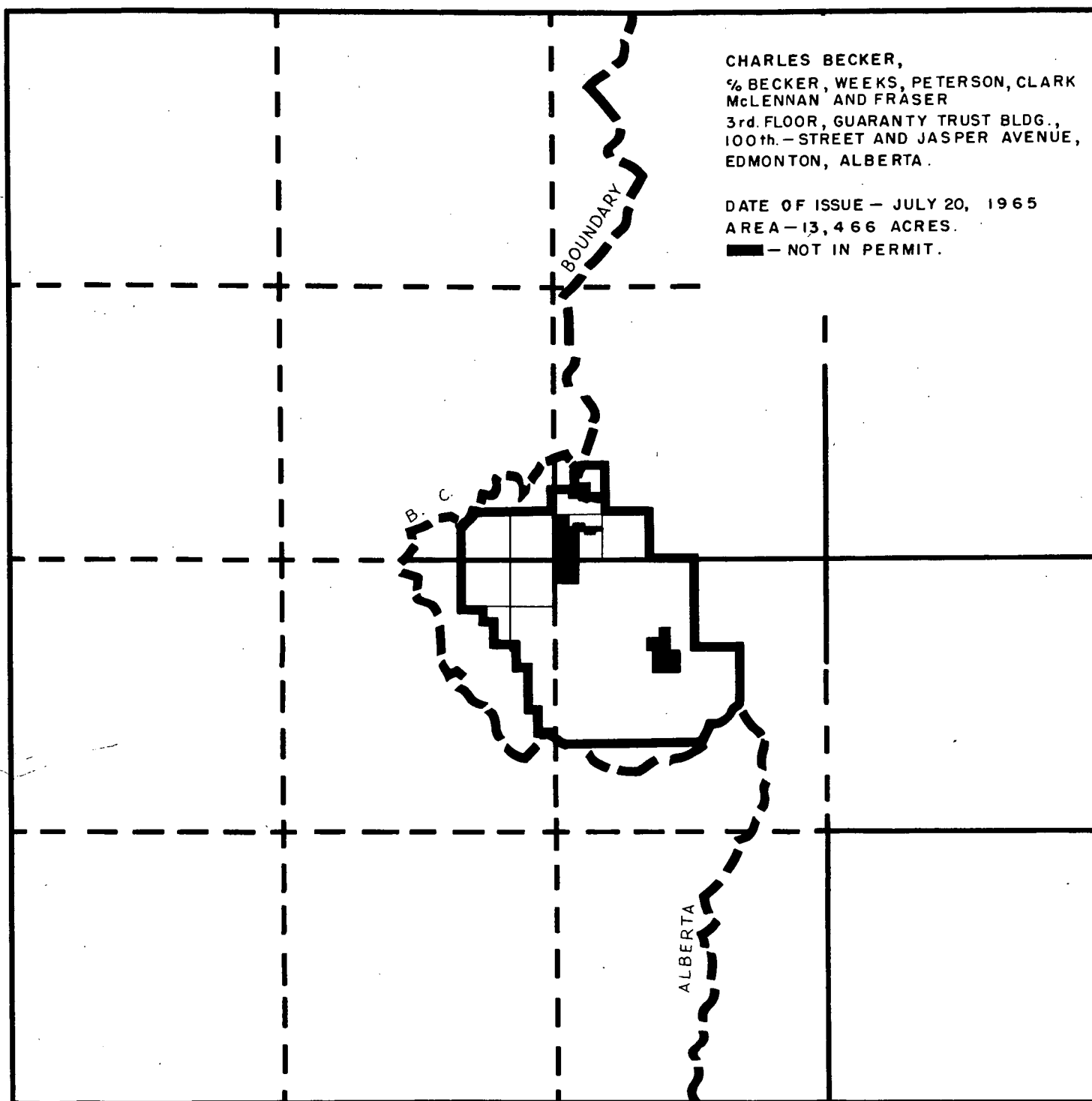
R. 1 W. 6 M.

# ROCK PHOSPHATE PROSPECTING PERMIT NO. 19

826/10

CHARLES BECKER,  
% BECKER, WEEKS, PETERSON, CLARK  
McLENNAN AND FRASER  
3rd. FLOOR, GUARANTY TRUST BLDG.,  
100th. - STREET AND JASPER AVENUE,  
EDMONTON, ALBERTA.

DATE OF ISSUE - JULY 20, 1965  
AREA - 13,466 ACRES.  
— NOT IN PERMIT.



R. 6

R. 5

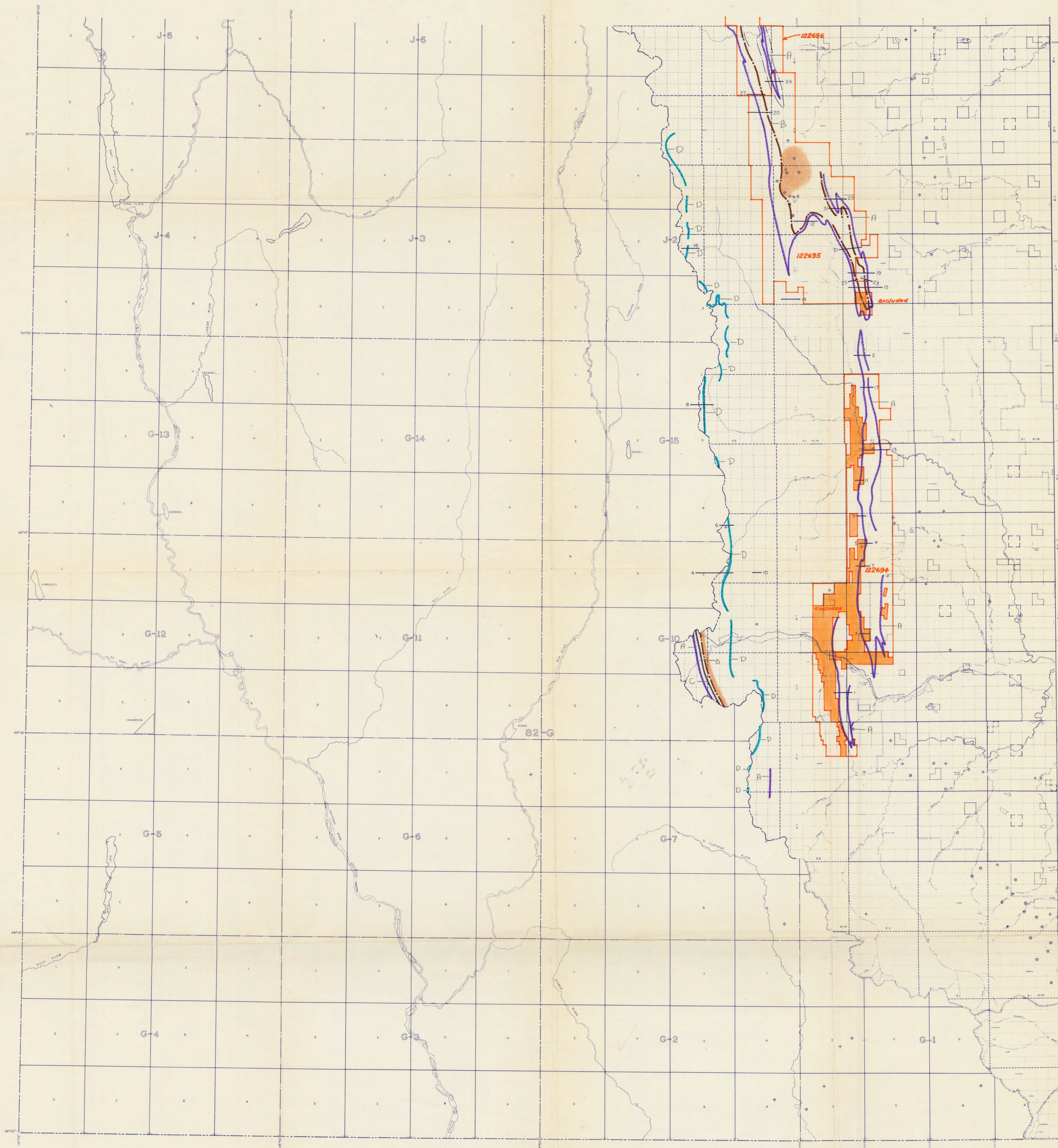
R. 4 W. 5 M.

TP. 8

TP. 7

TP. 6





- LEGEND**
- A ——— Jurassic Exposures
  - B ——— Triassic Exposures
  - C ——— Permian (Perm. in part) Exposures
  - D ——— Exshaw Exposures

HUDSON'S BAY OIL AND GAS COMPANY LIMITED

CALGARY ALBERTA

**CROWSNEST ALBERTA**

**PHOSPHATE PROJECT**

**MAP P I**

Location of Surface Traverses ——— 15

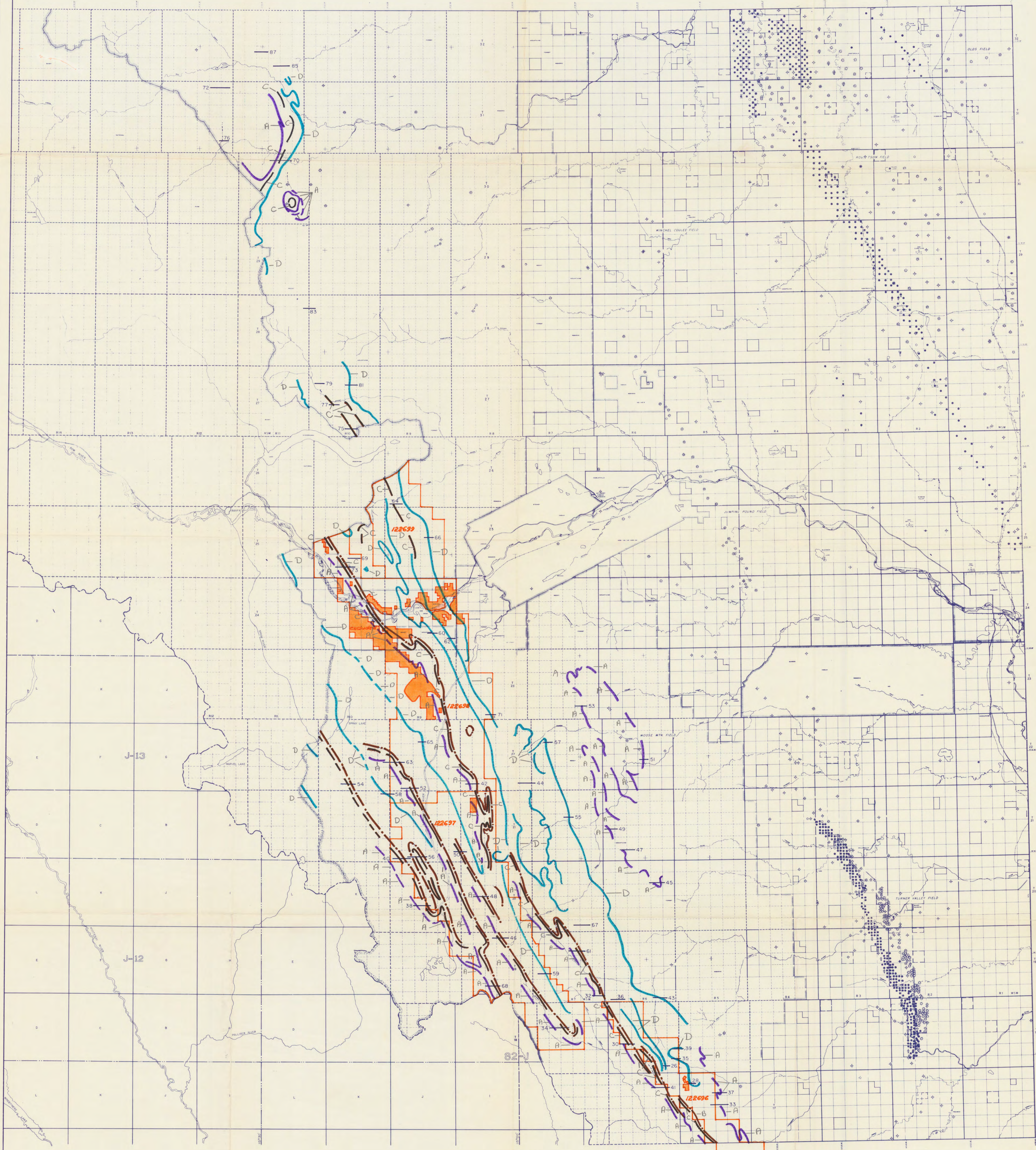
SCALE 1"=16000'

Nov. 1965 F.A. Peel V0 65-7-ii



CONTROLLED REGIONAL BASE MAP NO. CA  
CANADA  
Mines and Geology  
CALGARY, ALBERTA, CANADA





- LEGEND
- A — Jurassic Exposures
  - B — Triassic Exposures
  - C — Permian (Perm. in part) Exposures
  - D — Exshaw Exposures

HUDSON'S BAY OIL AND GAS COMPANY LIMITED

CALGARY ALBERTA

BIG BEND-TURNER VALLEY  
ALBERTA

PHOSPHATE PROJECT  
MAP P2

Location of Surface Traverses — 37

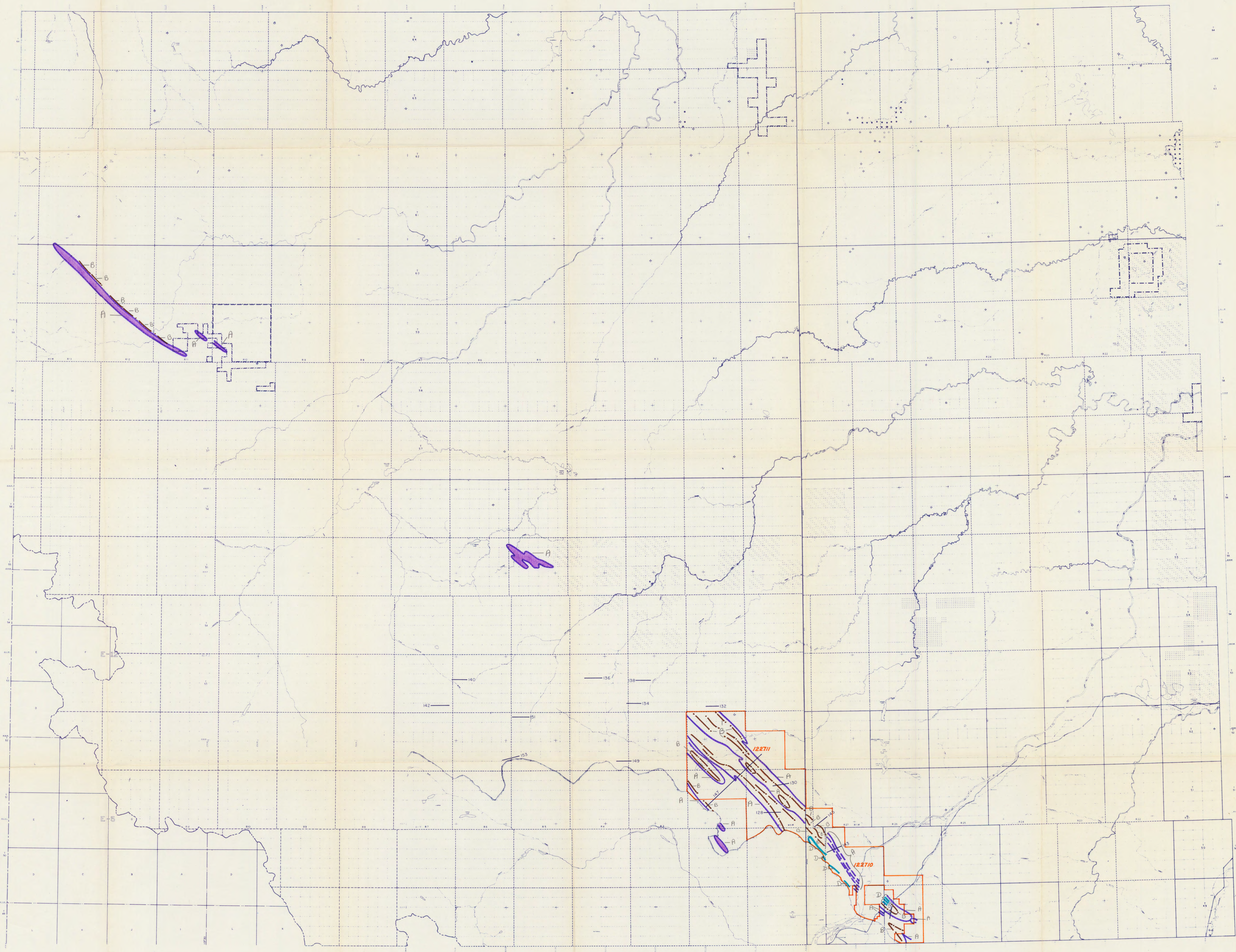
SCALE 1"=16000' (1:5000)

Nov. 1965 F.A. PEEL V1 65-7-iii









**LEGEND**

A Jurassic Exposures  
 B Triassic Exposures  
 C Permian (Perm. in part) Exposures  
 D Exshaw Exposures

H.B.C.	Royalty interest
Security Freehold Fee lands	Reservation or Permit
Security Freehold Fee lands leased to other companies	Drilling Reservation
H.B.O.G. Security Freehold (100% working interest) Min. Roy.	Gas lease
H.B.O.G. Partnership lands	Oil license