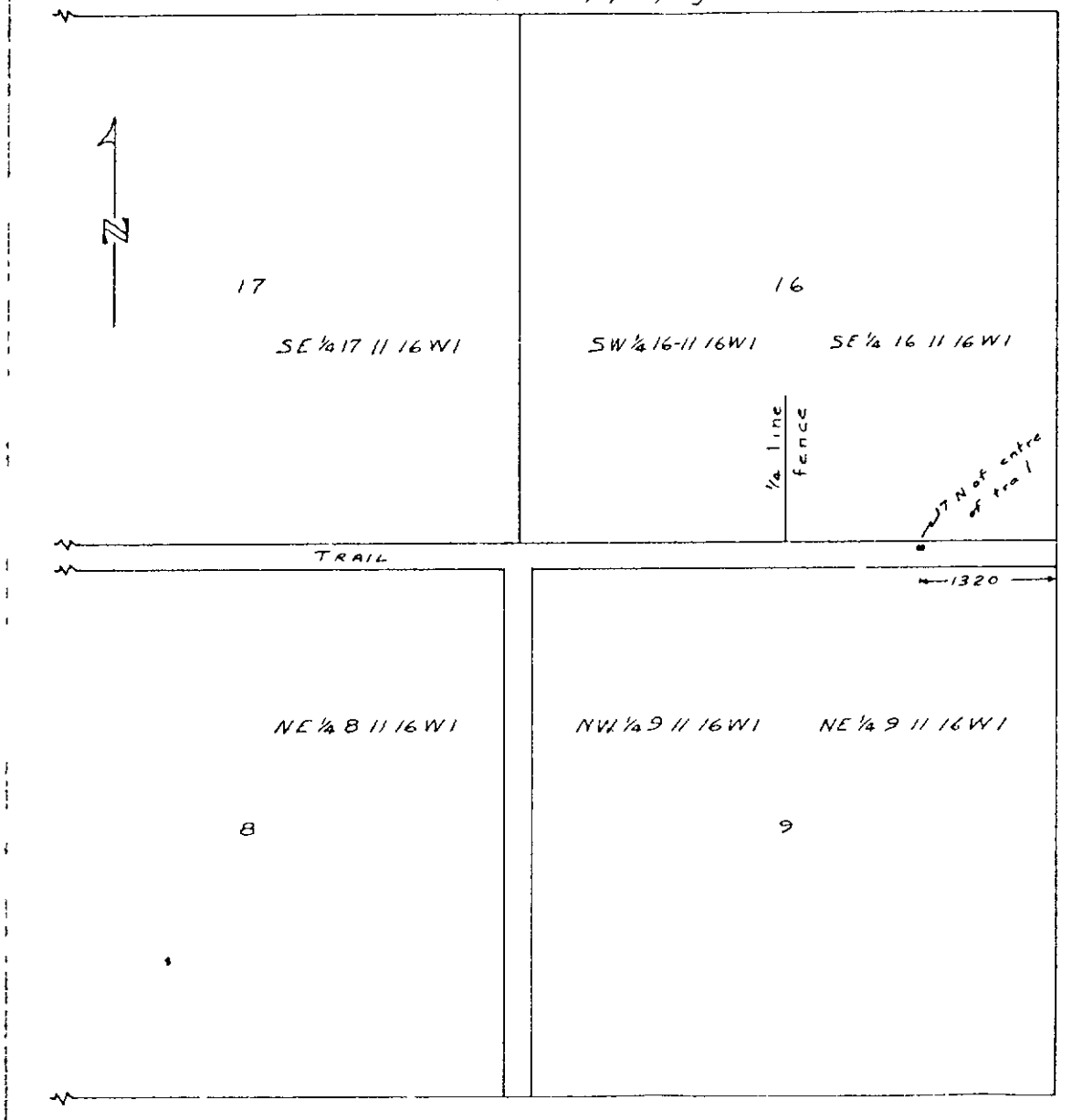
THE ATLANTIC REFINING COMPANY

CORE HOLE No 1 (16-11-16 W PM)

Between Sec 16 Tp 11, Rg 16 and

Sec 9, Tp 11, Rg 16 WPM



MANITOBA

Scale. 1 inch 1320 feet

Ground Elevation approx 1275 ft

RT

ATLANTIC REFINING Co

PROVINCE Manitoba OPERATOR Atlantic

WELL NAME Core Hole No 1

LOCATION Lsd 1 16 11 16 W1 ELEVATION 1275

DATE COMMENCED Aug 31/65 DATE COMPLETED Sept 10/65

TOTAL DEPTH 380ft DEEPEST FM PEN Favel

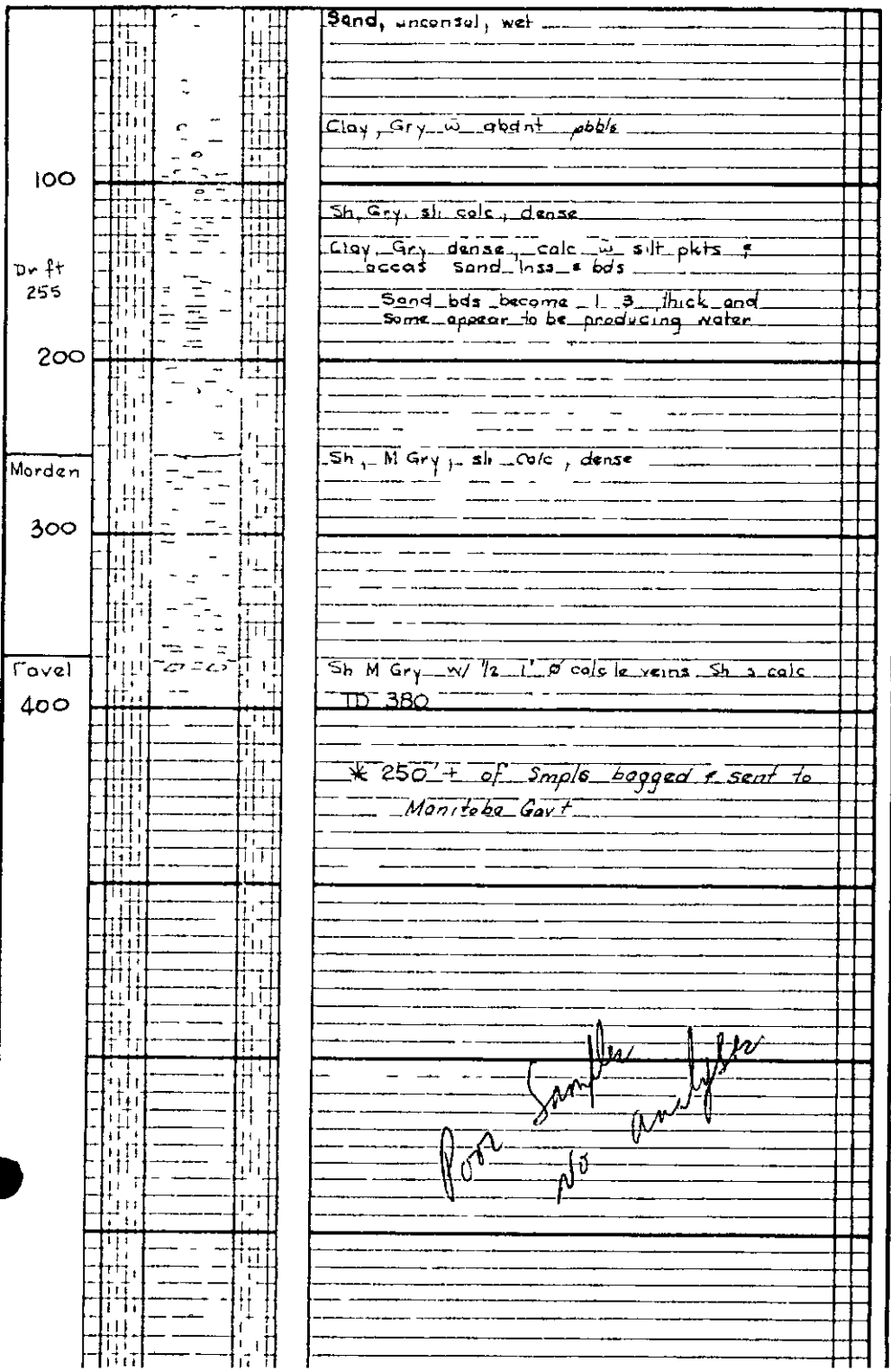
STATUS PRODUCING FORMATION

CASING SURFACE 114 PRODUCTION

LOGS RUN

SAMPLE QUALITY LOGGED BY RLT DATE

REMARKS * Spls or cores not available, none collected due to drlg problems



Sand, unconsol, wet

Clay, Gry w abdnt pebble

Sh, Gry, sli calc, dense

Clay Gry dense calc w silt pkts & occas sand lnss & bds

Sand bds become 1-3 thick and some appear to be producing water

Sh, M Gry, sli calc, dense

Sh M Gry w/ 1/2 1" ø calc le veins Sh & calc

TD 380

* 250'+ of Smpls bagged & sent to Manitoba Govt

Sample Analysis

Poor no

ATLANTIC REFINING Co

PROVINCE Manitoba — OPERATOR Atlantic

WELL NAME Core Hole No. 1

LOCATION Lsd 1 16 11 16 WL — ELEVATION 1275

DATE COMMENCED Aug 31/65 — DATE COMPLETED Sept 10/65

TOTAL DEPTH 380ft — DEEPEST FM PEN Favel

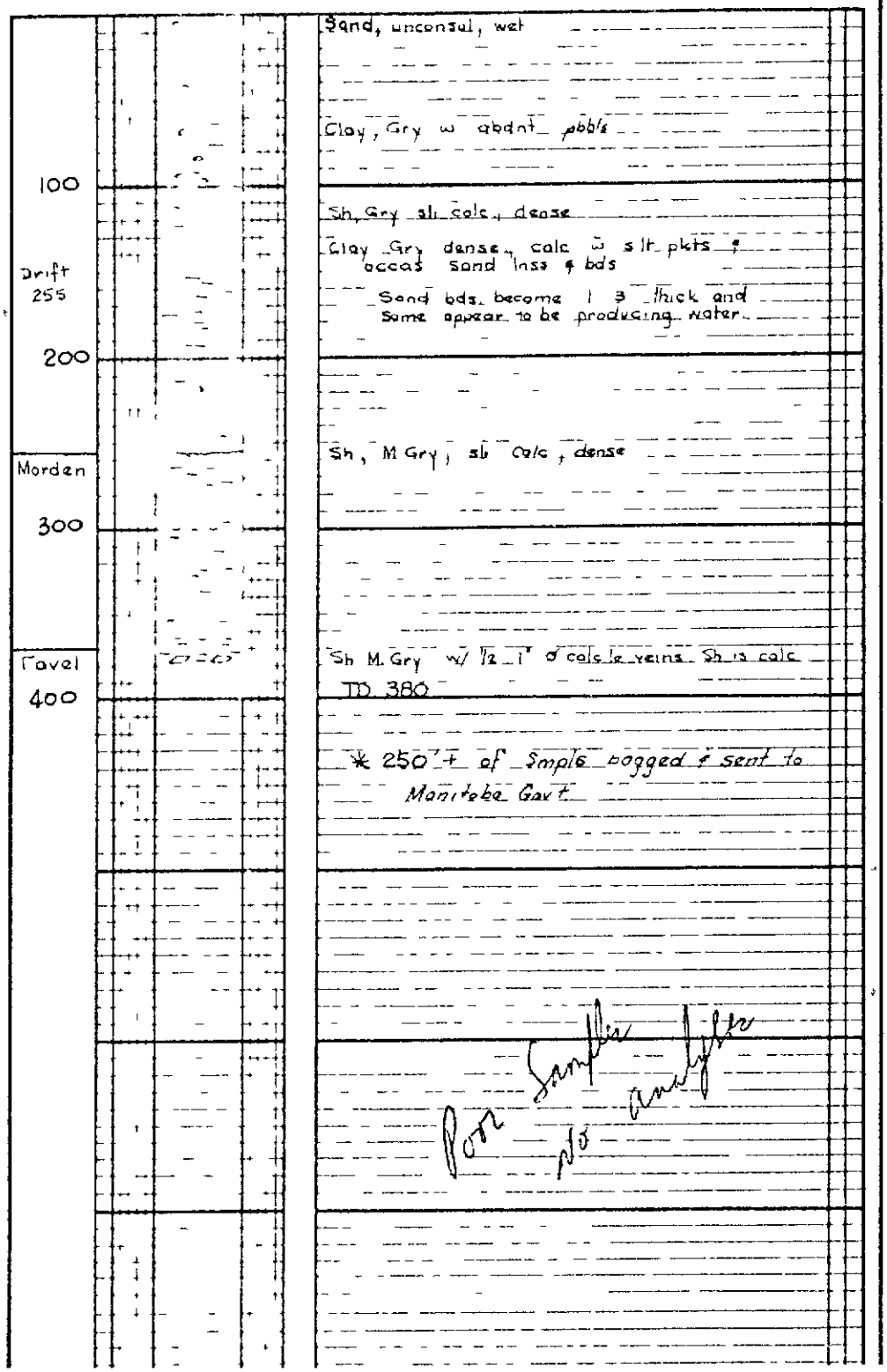
STATUS — PRODUCING FORMATION —

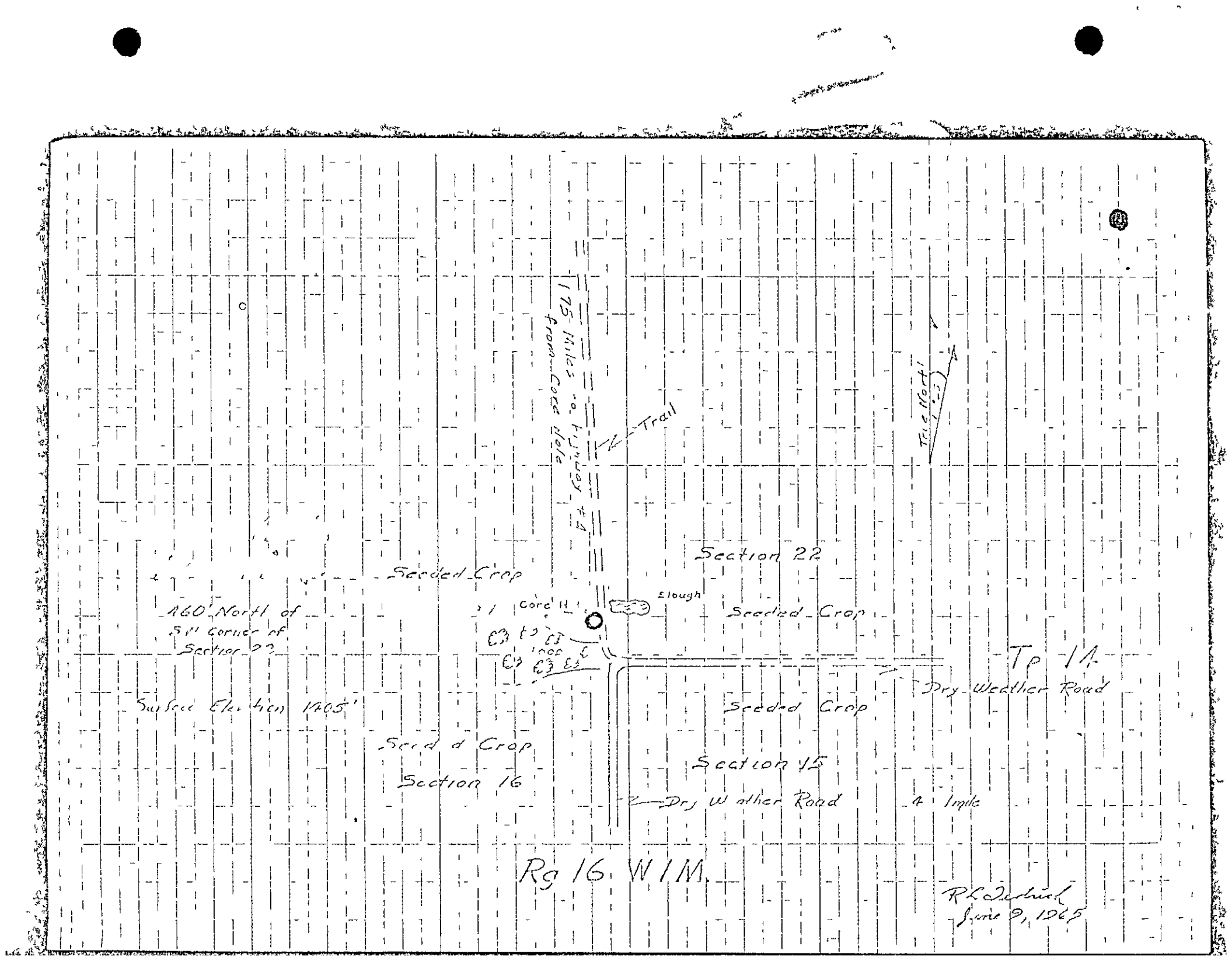
CASING — SURFACE 114 — PRODUCTION —

LOGS RUN —

SAMPLE QUALITY — LOGGED BY R L T — DATE —

REMARKS — * Spls or cores not available, none collected due to drlg problems




175 Miles to Flaxbury #4
Trail
True North
Section 22
Seeded Crop
160' North of SW Corner of Section 22
Surface Elevation 1405'
Core Hole
Slough
Seeded Crop
Seeded Crop
Tp 14
Dry Weather Road
Seeded Crop
Section 15
Section 16
Dry Weather Road
4 Mile
Rg 16 W1M.
R L Jardine
June 9, 1965

(Part 2)

(15) - 3 - #2

CHEMICAL & GEOLOGICAL LABORATORIES LTD

EDMONTON — CALGARY — FORT ST JOHN

ATLANTIC CORE HOLE #2 (16-11-8-11W1)

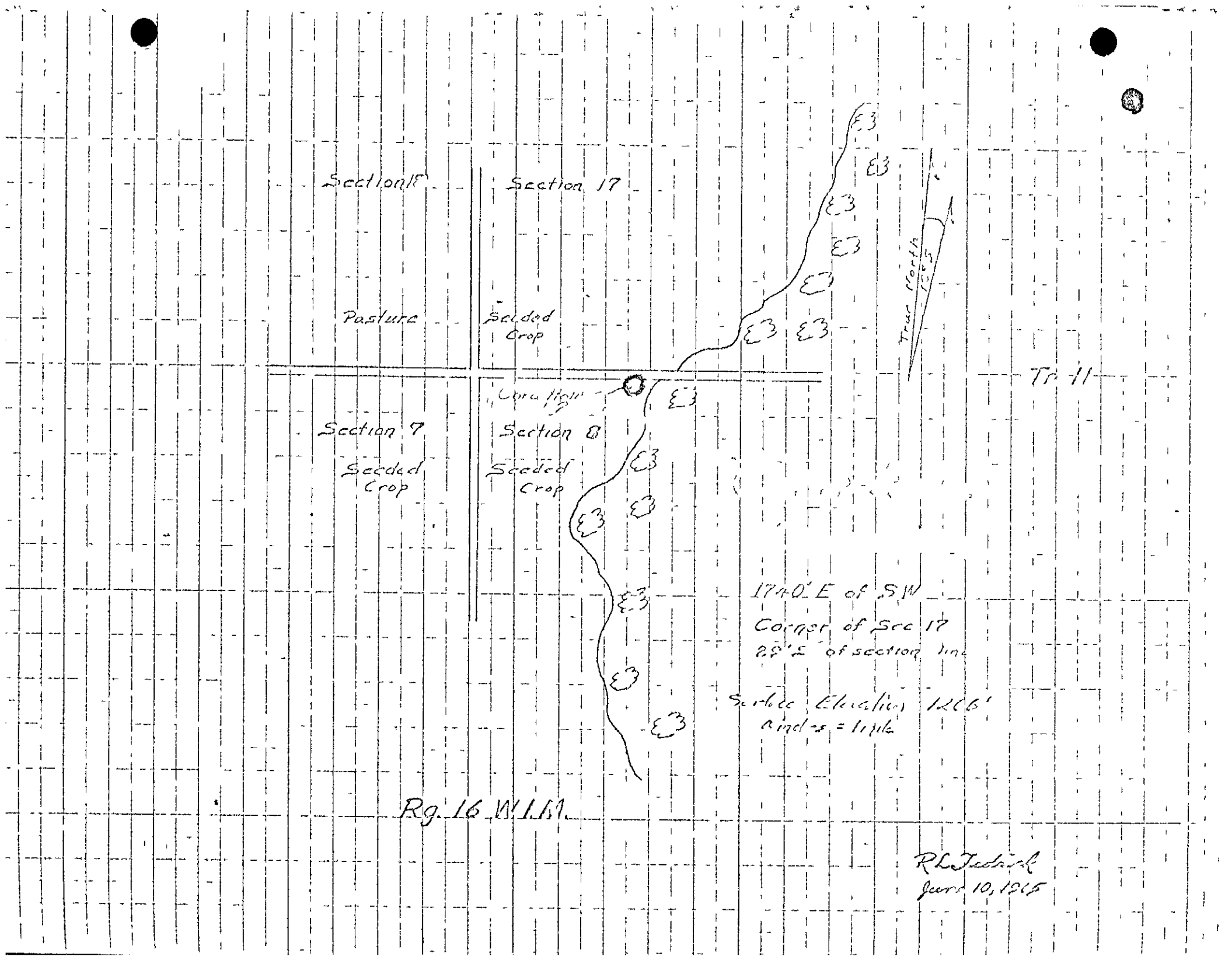
October 22, 1965

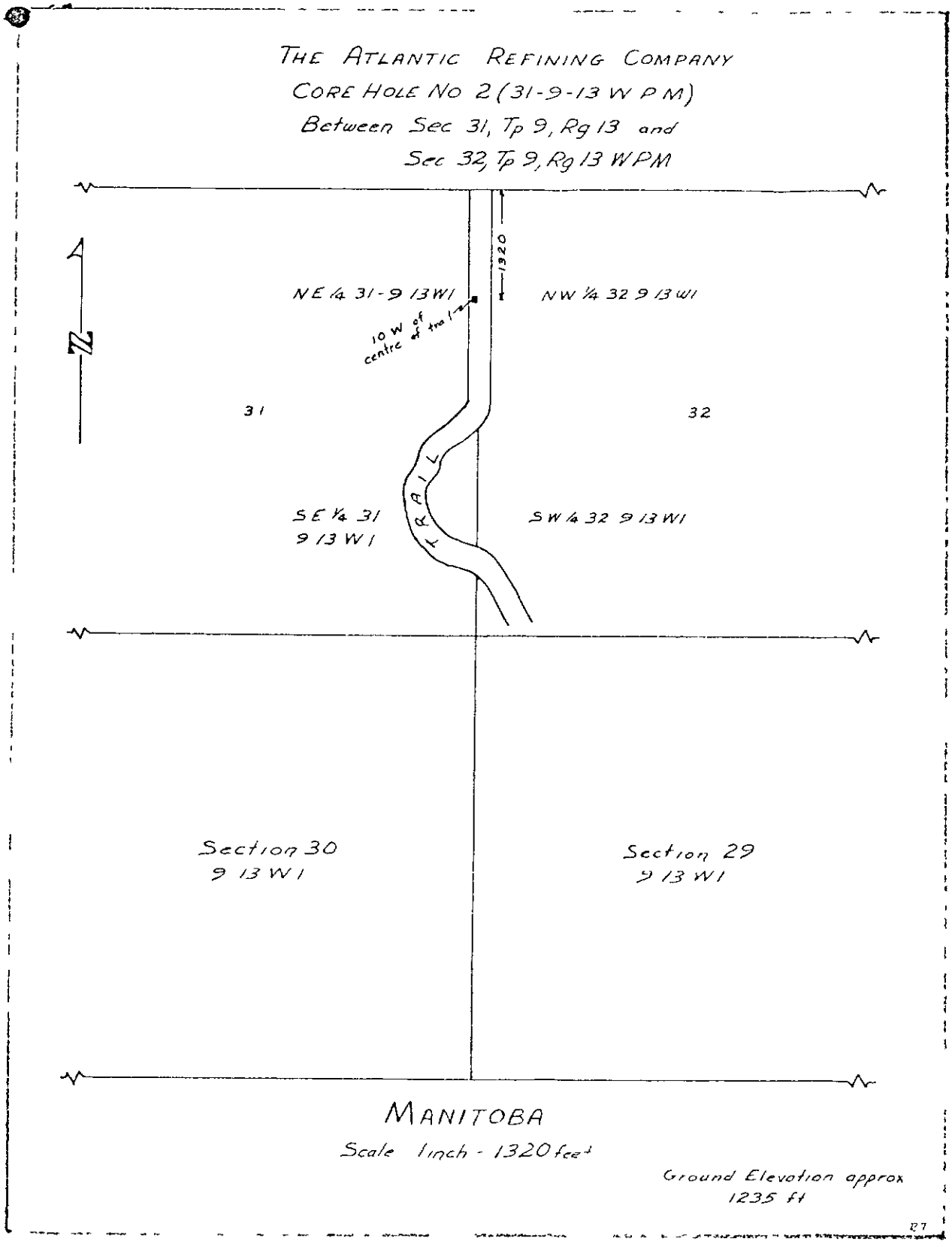
Laboratory Report Number: C7948

CORE HOLE NUMBER 4

1-27-1-6 (W1)

(3681 - 3731')


Section 18
Section 17
Pasture
Seeded Crop
Corn Row
Section 7
Seeded Crop
Section 8
Seeded Crop
True North
Tr 11
1740' E of SW Corner of Sec 17
22'± of section line
Surface Elevation 1266'
Rg. 16 W.I.M.
R.L. Jedrick
June 10, 1965


THE ATLANTIC REFINING COMPANY
CORE HOLE NO 2 (31-9-13 W P M)
Between Sec 31, Tp 9, Rg 13 and
Sec 32, Tp 9, Rg 13 WPM
1320
NE 1/4 31-9 13W1
NW 1/4 32 9 13 W1
10 W of centre of trail
N
31
32
TRAIL
SE 1/4 31
9 13 W1
SW 1/4 32 9 13 W1
Section 30
9 13 W1
Section 29
9 13 W1
MANITOBA
Scale 1 inch - 1320 feet
Ground Elevation approx
1235 ft

INTER-DEPARTMENTAL MI

DM

SUBJECT

ATLANTIC REFINING Co

PROVINCE Manitoba OPERATOR Atlantic

WELL NAME Core Hole No 2

LOCATION 16 11 8 1W1 ELEVATION 1180'

DATE COMMENCED 7/9/65 DATE COMPLETED 8/9/65

TOTAL DEPTH 400' DEEPEST FM PEN Ashville

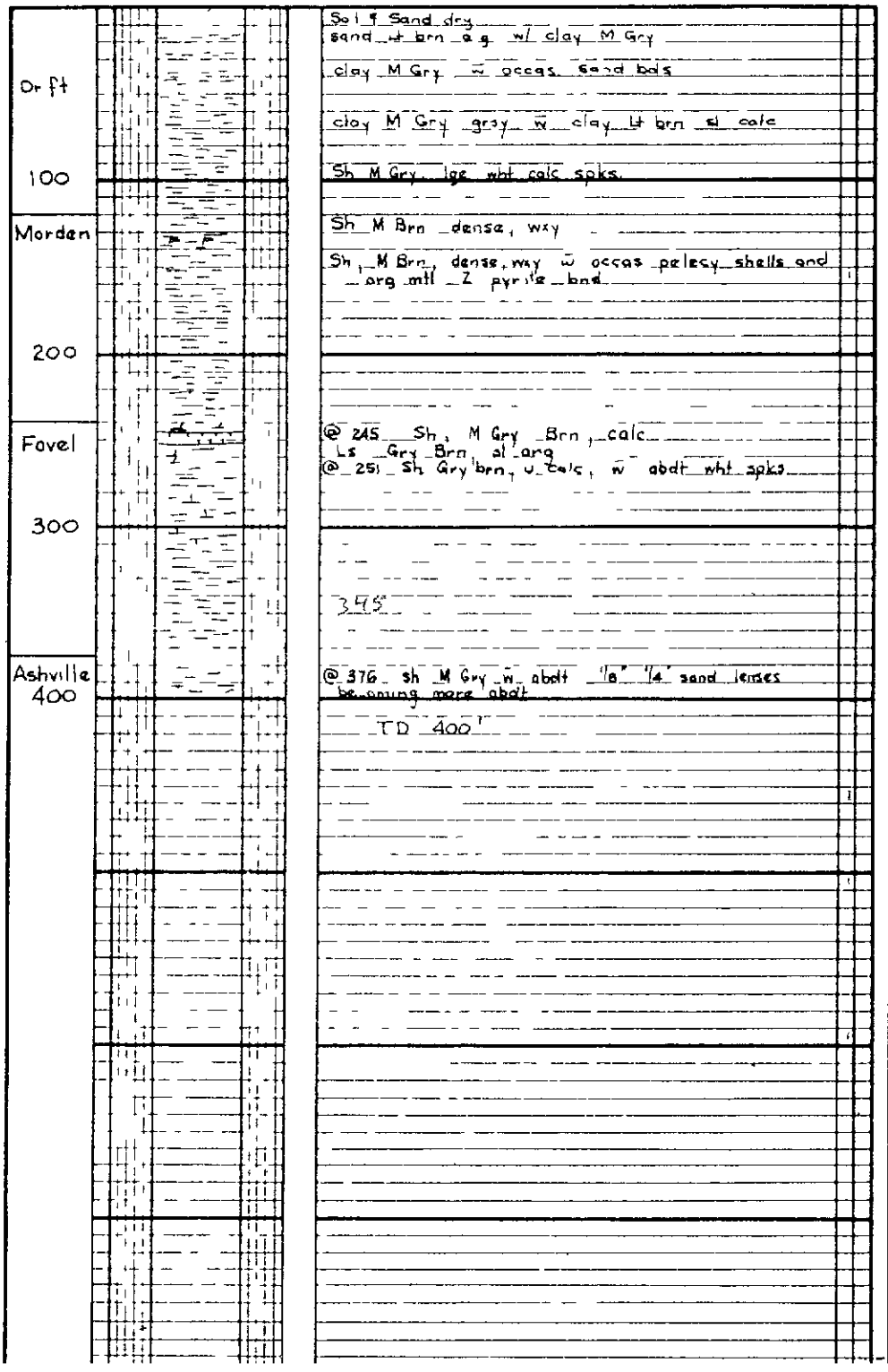
STATUS PRODUCING FORMATION

CASING SURFACE 90' PRODUCTION

LOGS RUN

SAMPLE QUALITY LOGGED BY R L T DATE

REMARKS

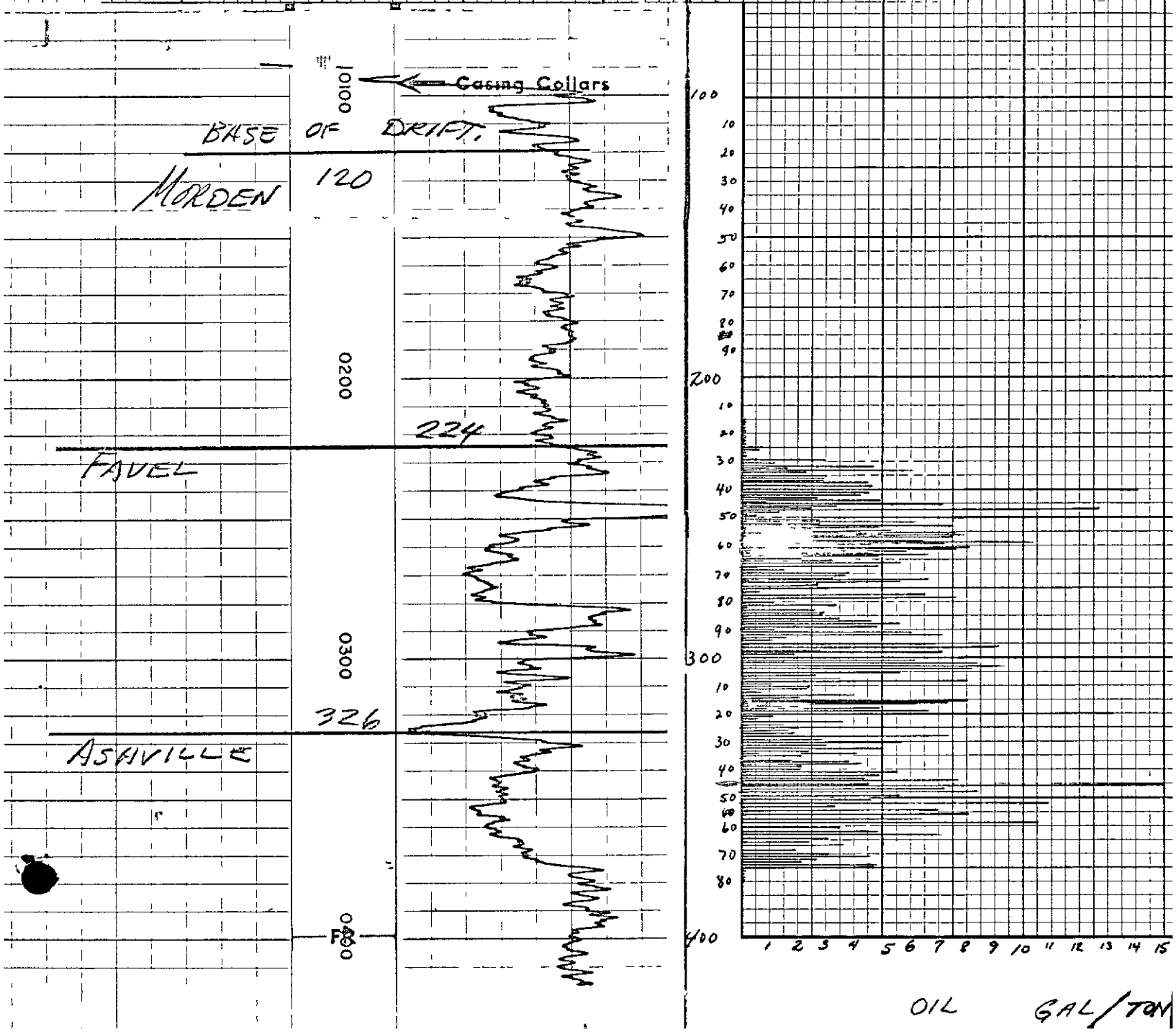


Sol & Sand dsg
sand lt brn a g w/ clay M Gry
clay M Gry w occas sand bds
clay M Gry gray w clay lt brn sl calc
Sh M Gry lge wht calc spks
Sh M Brn dense, wxy
Sh, M Brn, dense, wxy w occas pelecy shells and org mtl Z pyrite bnd
@ 245 Sh, M Gry Brn, calc
Ls Gry Brn, sl arg
@ 251 Sh Gry brn, v calc, w abdt wht spks
345
@ 376 sh M Gry w abdt 1/8" 1/4" sand lenses becoming more abdt
TD 400'

CORE HOLE No. 2

FORMATION DENSITY LOG.

LABORATORY ANALYSIS



CHEMICAL & GEOLOGICAL LABORATORIES LTD

Date Reported. October 12, 1965 Laboratory Report Number. C7909

THE ATLANTIC REFINING COMPANY

Well: Lsd 16-11-8-11 W1 Kind of Sample. Core

Date Received. September 14, 1965 Core Hole: Number 2

Specific Gravity: 0.962 at 60/60°F
A.P.I. Gravity: 15.6 at 60°60°F

Yields are reported in U.S. gallons

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
1	2	215'-229'	1	< 0.1	37.1	2.17
2			2	< 0.1	36.6	2.09
3			3	< 0.1	33.3	2.14
4			4	< 0.1	31.5	2.14
5			5	< 0.1	32.0	2.06
6			6	< 0.1	33.1	2.14
7			7	< 0.1	35.6	2.19
8			8	< 0.1	34.2	2.14
9			9	< 0.1	34.0	2.20
10			10	1.9	11.7	2.17
11			11	1.2	32.6	2.17
12			12	< 0.1	32.7	2.18
13			13	< 0.1	30.1	2.16
14	2	229'-243'	1	3.0	25.1	2.24
15			2	1.1	28.7	2.22
16			3	4.7	23.7	2.31

avg'd

Avge. yield of spls. 10 - 169 = 4.5 g/ton

Date Reported. October 12, 1965

The Atlantic Refining Company

Laboratory Report Number C7909

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
17	2	229'-243'	4	1.6	22.1	2.31
18			5	6.1	22.9	2.20
19			6	2.3	25.3	2.16
20			7	3.0	26.3	2.17
21			8	2.9	23.1	2.26
22			9	2.9	20.9	2.33
23			10	4.5	24.1	2.14
24			11	4.6	31.6	2.08
25			12	14.1	23.5	2.06
26			13	4.5	29.4	2.12
27			14	4.2	29.1	2.16
28			15	3.1	32.3	2.01
29	2	243'-253'	1	4.9	29.8	2.10
30			2	0.9	35.1	2.07
31			3	7.2	29.9	2.06
32			4	3.4	30.3	2.04
33			5	3.0	34.4	2.01
34			6	13.1	20.8	2.05
35			7	1.3	22.8	2.07
36			8	<0.1	14.6	2.26
37			9	0.5	9.1	2.33
38			10	0.2	11.1	2.57
39			11	2.7	8.2	2.17
40			12	6.2	26.8	2.08
41			13	2.7	39.5	2.13
42			14	7.5	26.1	2.46

Date Reported: October 12, 1965

The Atlantic Refining Company

Laboratory Report Number C7909

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
43	2	253'-260'	1	4.9	27.2	2.11
44			2	2.4	38.2	2.15
45			3	2.7	32.4	2.18
46			4	5.3	24.6	2.04
47			5	7.7	29.9	2.03
48			6	5.0	33.8	2.04
49			7	7.8	26.9	2.03
50			8	7.5	30.8	2.05
51			9	2.5	37.0	2.00
52			10	6.4	32.7	2.02
53			11	10.3	29.7	2.31
54			12	7.2	30.3	2.07
55			13	4.6	32.7	2.04
56			14	1.6	36.3	2.07
57	2	260'-273'	1	8.1	34.1	2.10
58			2	7.6	33.8	2.04
59			3	5.8	35.3	2.01
60			4	4.7	39.1	2.03
61			5	6.7	32.4	2.00
62			6	4.9	30.8	2.07
63			7	2.2	39.6	2.05
64			8	3.2	38.8	2.00
65			9	5.6	35.8	2.07
66			10	4.8	36.0	2.07
67			11	1.5	38.4	2.06
68			12	3.8	36.6	1.91

Date Reported: October 12, 1965

The Atlantic Refining Company

Laboratory Report Number C7909

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
69	2	260'-273'	13	3.7	37.2	2.08
70			14	3.2	39.0	2.02
71	2	273'-287'	1	6.6	35.8	2.02
72			2	5.7	34.7	2.33
73			3	2.6	23.5	2.24
74			4	3.1	15.8	2.25
75			5	0.7	30.2	2.14
76			6	6.0	23.4	2.25
77			7	7.6	26.3	2.19
78			8	1.2	26.1	2.18
79			9	3.4	15.2	2.10
80			10	< 0.1	22.1	2.24
81			11	2.7	22.3	2.14
82			12	2.9	32.4	2.04
83			13	2.8	28.0	2.14
84			14	3.5	31.5	2.11
85			15	4.7	26.1	2.01
86	2	287'-302'	1	5.6	38.4	2.06
87			2	4.8	27.3	1.94
88			3	1.2	30.5	2.21
89			4	6.0	24.4	2.18
90			5	7.2	22.5	2.48
91			6	1.6	19.5	2.21
92			7	1.1	22.3	2.21
93			8	6.9	26.8	2.26
94			9	9.2	29.9	1.99
95			10	2.8	32.3	2.09

Date Reported: October 12, 1965

The Atlantic Refining Company

Laboratory Report Number C7909

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
96	2	287'-302'	11	7.1	17.0	2.15
97			12	1.9	35.1	2.10
98			13	5.4	33.9	2.01
99			14	6.2	31.0	2.08
100			15	8.4	24.2	2.16
101	2	302'-317'	1	9.3	28.7	2.05
102			2	8.2	30.0	2.03
103			3	5.6	27.3	2.12
104			4	2.6	36.0	2.03
105			5	3.5	28.1	2.08
106			6	8.0	33.0	2.01
107			7	1.2	31.2	2.12
108			8	2.4	29.6	1.96
109			9	2.3	25.7	2.17
110			10	0.7	27.7	2.26
111			11	4.0	34.8	2.20
112			12	2.2	28.0	2.13
113			13	8.0	31.8	1.95
114			14	7.3	25.9	2.14
115			15	6.3	36.9	1.93
116	2	317'-331'	1	2.3	26.9	2.11
117			2	4.9	34.8	1.97
118			3	6.7	37.8	2.11
119			4	13.2	41.0	1.76
120			5	1.1	48.6	1.85
121			6	0.5	37.3	1.94
122			7	3.6	33.5	2.18

Date Reported. October 12, 1965

The Atlantic Refining Company

Laboratory Report Number C7909

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
123	2	317'-331'	8	1.5	34.7	2.05
124			9	2.0	21.1	2.19
125			10	1.7	26.8	2.08
126			11	1.9	29.3	2.31
127			12	7.3	39.8	1.90
128			13	2.9	34.4	2.07
129			14	5.7	30.6	2.05
130			15	3.0	32.3	2.04
131	2	331'-345'	1	5.0	32.5	2.08
132			2	2.3	33.5	2.09
133			3	4.1	32.3	2.05
134			4	2.1	29.5	2.06
135			5	1.2	33.1	2.15
136			6	1.7	34.2	2.07
137			7	3.8	30.8	2.08
138			8	4.3	30.5	2.09
139			9	2.1	34.6	2.05
140			10	2.1	35.2	2.02
141			11	5.5	34.0	2.03
142			12	4.8	34.5	2.02
143			13	4.4	35.4	1.95
144			14	7.7	28.9	2.01
145			15	4.5	31.6	2.04
146	2	345'-365'	1	15.0	30.3	2.14
147			2	7.2	33.1	2.00
148			3	8.3	31.0	2.02
149			4	5.6	33.9	2.00

Date Reported October 12, 1965

The Atlantic Refining Company

Laboratory Report Number C7909

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
150	2	345'-365'	5	4.6	34.2	2.04
151			6	10.9	26.7	2.06
152			7	3.3	40.3	2.02
153			8	6.9	29.2	2.20
154			9	8.0	36.3	2.04
155			10	6.4	32.3	2.03
156			11	10.5	28.1	2.08
157			12	3.5	37.2	2.01
158			13	4.8	35.7	2.04
159			14	7.1	32.6	2.07
160			15	3.2	35.2	2.13
161	2	365'-380'	1	2.4	36.4	2.12
162			2	3.6	33.7	2.12
163			3	1.8	36.7	2.11
164			4	3.1	37.5	2.11
165			5	4.6	34.6	2.14
166			6	2.7	36.2	2.09
167			7	2.2	36.7	2.14 Spec. grav.
168			8	4.8	29.1	2.15
169			9	4.7	31.2	2.18
170			10	<0.1	22.6	2.26
171			11	<0.1	28.4	2.17
172			12	<0.1	28.0	2.13
173			13	<0.1	30.2	2.17
174			14	<0.1	31.4	2.15

M. N Gout Copy

C H. # 3

(15) 3-#3

CHEMICAL & GEOLOGICAL LABORATORIES LTD

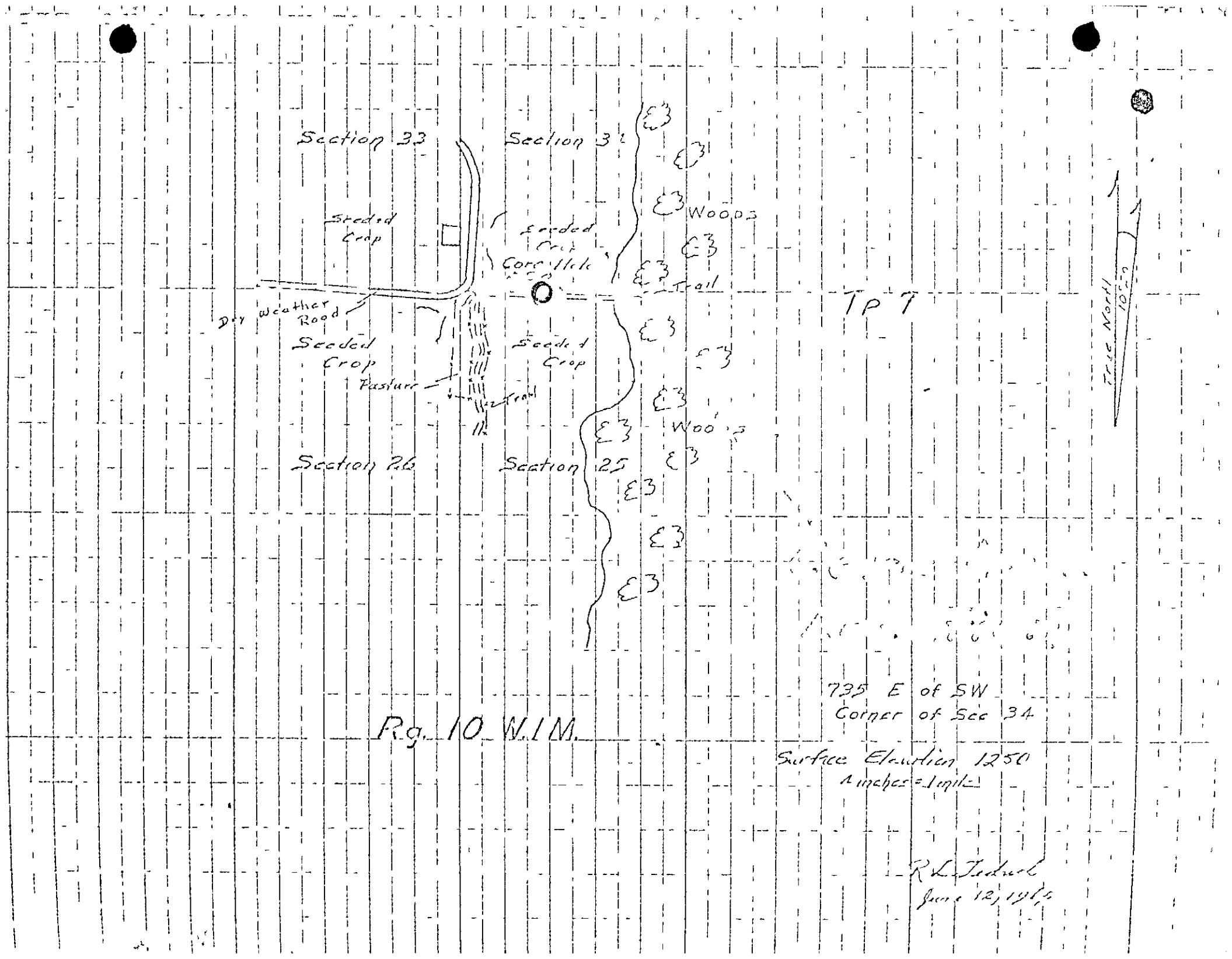
EDMONTON — CALGARY — FORT ST JOHN

ATLANTIC CORE HOLE #3 (2-9-6-8 W PM)

September 20, 1965

Laboratory Report Number C7821

The Atlantic Refining Company

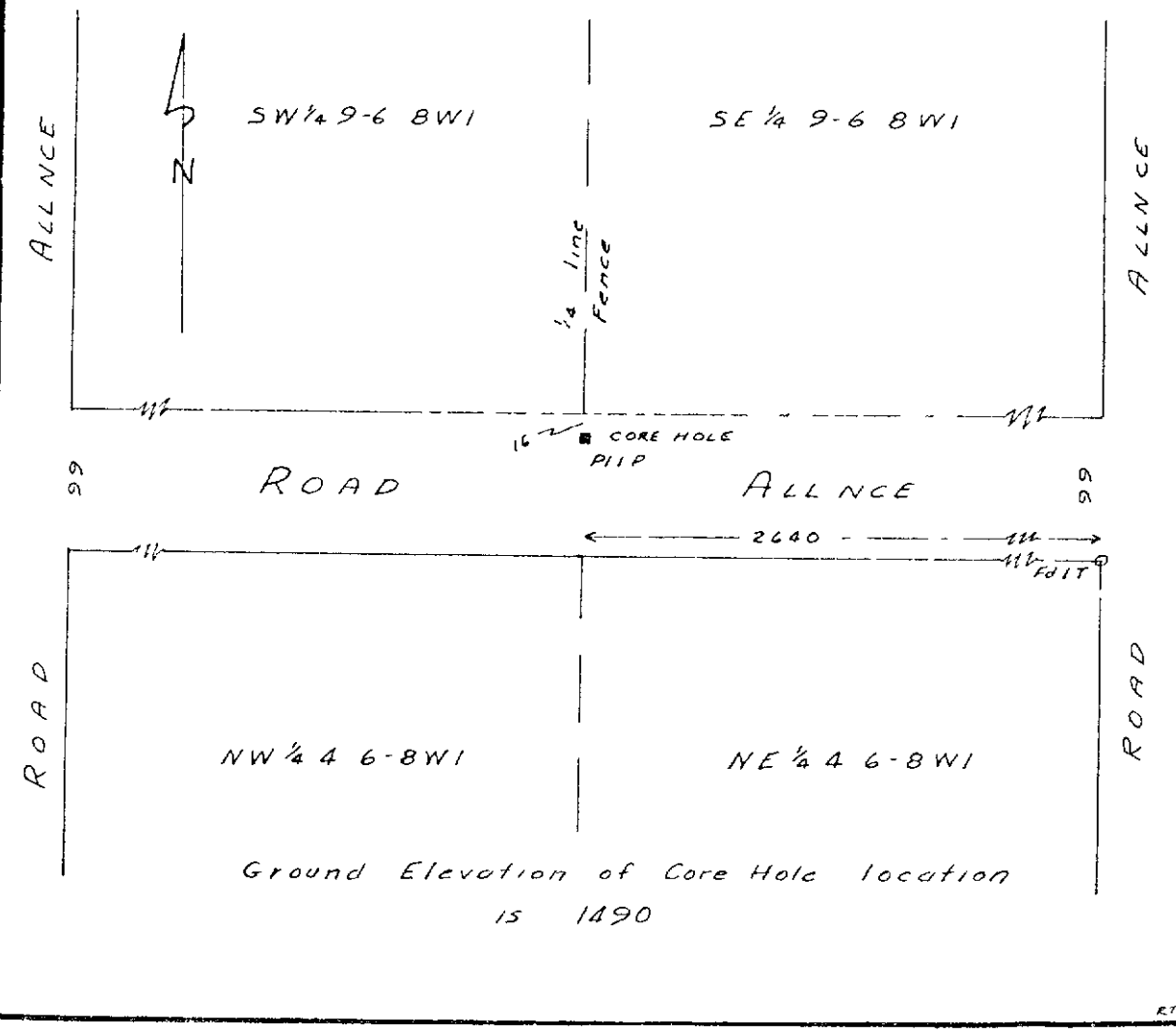

Section 33
Section 34
Seeded Crop
Seeded Crop
Corvallis
Trail
Woods
Dry Weather Road
Seeded Crop
Seeded Crop
Pasture
Trail
Woods
Section 26
Section 25
T P 7
True North
10°E
R.9. 10 W.I M.
735' E of SW Corner of Sec 34
Surface Elevation 1250
1 inches = 1 mile
R L Tedrow
June 12, 1945

ATLANTIC REFINING COMPANY
CORE HOLE No. 3 (4-6-8 W.P.M.)

Between Sec 9, Twp 6, Rge 8 and
Sec 4, Twp 6, Rge 8 WPM

MANITOBA

Scale 1 in = 100 ft



Ground Elevation of Core Hole location
is 1490

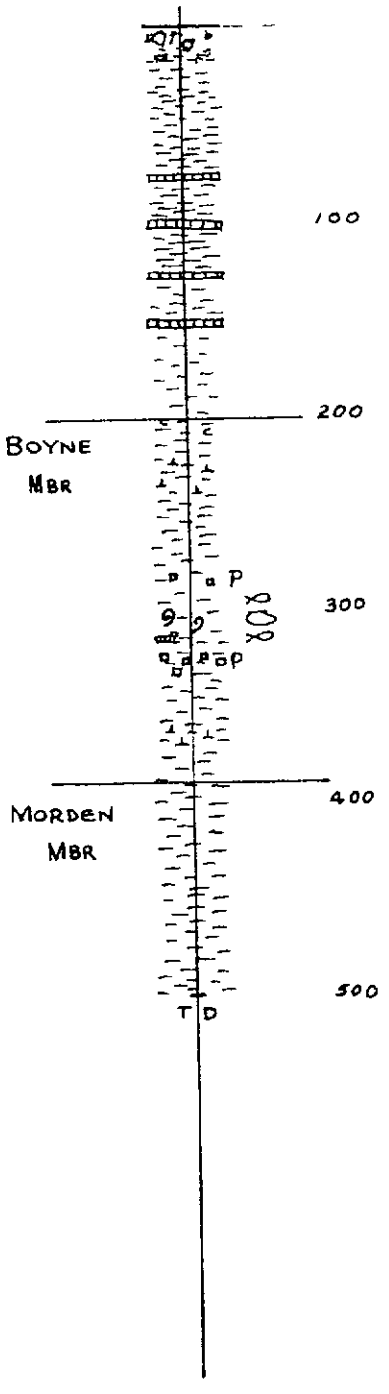
RT

ATLANTIC REFINING

CORE HOLE No 3

Lsd 2-9-6-8 W.1

KB 1490'



Boulders, sd, clay

Sh blk

Sh dk gr blk s/c silty blocky non calc

Sh fiss non calc, w/abdt bent sh i s/c wxy

Sh m-dk gr non-calc

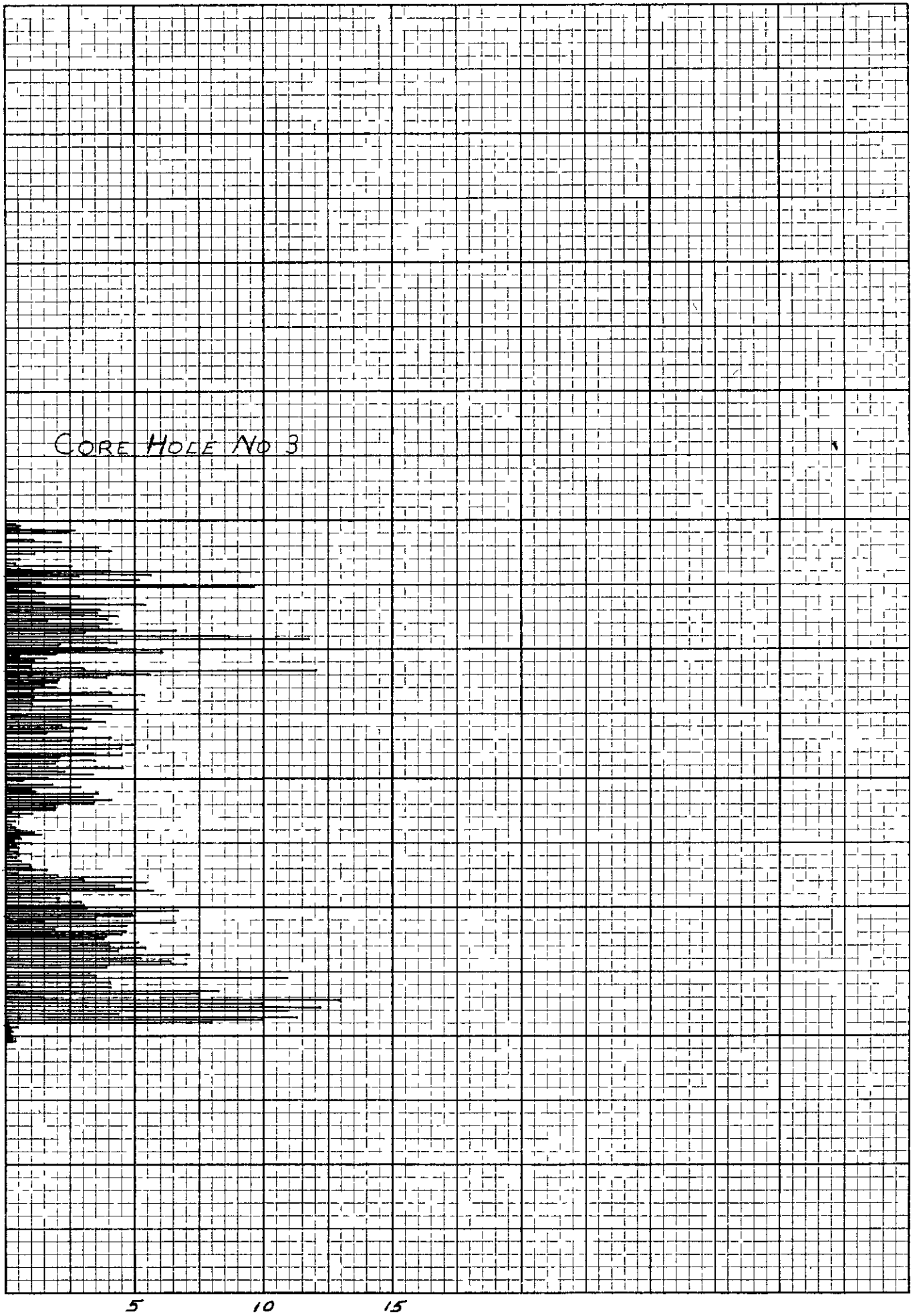
Sh dk gr to blk carb flks non calc

Sh wxy calc @ 223, w/whi spks @ 224 burns well

w/ pyrite
w/ Fish scales
" large shell frags
Fish scales, w/ few ¼" bent bds
@ 329 sh blk s/c calc w/ abund Py
blocky, Py absent @ 332
v light flame
Sh dk-brn v sh calc wxy, v fiss
silty on bed surf Light yel flame
@ 358 Sh non calc @ 362'
Sh dk gr v calc w/ whi spks in
bds 1'-2 apart
burns w/ gd yell flame
@ 391 Sh lt gr m gr wxy, non calc
non fiss concretionary
Sh m gr non calc

TD 500

MAIN GOVT COPY



CHEMICAL & GEOLOGICAL LABORATORIES LTD

14240 115 AVENUE EDMONTON ALBERTA

Date Reported: September 20, 1965 Laboratory Report Number C7821

THE ATLANTIC REFINING COMPANY

Well. 2-9-6-8-W1 Kind of Sample Core

Date Received August 24, 1965 Core Hole. Number 3

Specific Gravity 0.958 at 60/60°F.
A.P.I. Gravity 16.2 at 60/60°F.

Yields Are Reported In U.S. Gallons

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
1	3	177' - 180'	1	<0.1	47.8	2.00
2	3	177' - 180'	2	0.7	52.1	2.02
3	3	177' - 180'	3	2.9	48.2	2.01
4	3	180' - 186'	1	0.3	50.1	2.05
5	3	180' - 186'	2	2.7	46.0	2.02
6	3	180' - 186'	3	0.1	47.7	2.06
7	3	180' - 186'	4	0.4	49.2	1.99
8	3	180' - 186'	5	0.3	47.5	2.02
9	3	180' - 186'	6	<0.1	51.6	2.06
10	3	186' - 189'	1	0.4	54.7	1.98
11	3	186' - 189'	2	0.2	50.7	2.06
12	3	186' - 189'	3	0.3	51.0	2.03
13	3	186' - 189'	4	0.3	55.1	2.00
14	3	189' - 200'	1	0.2	53.9	2.00
15	3	189' - 200'	2	0.4	56.2	2.03
16	3	189' - 200'	3	0.2	50.1	2.03
17	3	189' - 200'	4	0.3	52.2	2.06

Date Reported. September 20, 1965

The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
18	3	189° - 200°	5	<0.1	51.1	2.04
19	3	189° - 200°	6	0.3	51.1	2.05
20	3	189° - 200°	7	0.2	52.9	2.02
21	3	189° - 200°	8	0.2	50.0	2.08
22	3	189° - 200°	9	<0.1	50.2	2.07
23	3	189° - 200°	10	<0.1	51.0	2.06
24	3	189° - 200°	11	<0.1	50.5	2.09
25	3	189° - 200°	12	0.8	51.1	2.09
26	3	200° - 215°	1	0.3	56.4	1.96
27	3	200° - 215°	2	0.6	48.0	2.06
28	3	200° - 215°	3	0.3	47.1	2.10
29	3	200° - 215°	4	0.4	45.0	2.08
30	3	200° - 215°	5	1.5	45.7	2.03
31	3	200° - 215°	6	2.7	49.9	1.94
32	3	200° - 215°	7	2.3	41.7	1.95
33	3	200° - 215°	8	1.1	49.3	2.05
34	3	200° - 215°	9	2.2	53.7	1.94
35	3	200° - 215°	10	3.6	49.2	1.97
36	3	200° - 215°	11	4.1	52.7	1.93
37	3	200° - 215°	12	1.2	55.3	1.97
38	3	200° - 215°	13	0.5	61.7	1.90
39	3	215° - 227°	1	0.3	64.0	1.84
40	3	215° - 227°	2	2.5	62.2	1.92
41	3	215° - 227°	3	1.0	61.9	1.99
42	3	215° - 227°	4	9.1	40.1	1.99
43	3	215° - 227°	5	5.6	46.8	2.00

Date Reported. September 20, 1965

The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
44	3	215' - 227'	6	2.8	46.3	1.97
45	3	215' - 227'	7	5.1	40.5	2.05
46	3	215' - 227'	8	1.3	59.8	1.96
47	3	215' - 227'	9	6.9	39.8	2.12
48	3	215' - 227'	10	9.7	37.7	2.05
49	3	215' - 227'	11	0.4	23.9	1.89
50	3	215' - 227'	12	1.2	52.9	2.07
51	3	215' - 227'	13	1.5	43.4	1.92
52	3	227' - 240'	1	2.9	39.5	1.96
53	3	227' - 240'	2	3.8	46.4	2.10
54	3	227' - 240'	3	1.5	63.7	1.99
55	3	227' - 240'	4	3.4	44.7	1.98
56	3	227' - 240'	5	2.4	46.8	2.07
57	3	227' - 240'	6	3.7	48.6	2.01
58	3	227' - 240'	7	3.1	51.8	2.01
59	3	227' - 240'	8	4.4	48.7	1.98
60	3	227' - 240'	9	3.8	46.4	1.93
61	3	227' - 240'	10	1.6	49.0	2.03
62	3	227' - 240'	11	4.1	40.8	2.08
63	3	227' - 240'	12	4.8	43.1	2.06
64	3	227' - 240'	13	3.4	46.6	1.99
65	3	227' - 240'	14	3.8	42.4	2.04
66	3	227' - 240'	15	4.6	41.9	1.97
67	3	240' - 250'	1	4.4	44.2	2.03
68	3	240' - 250'	2	4.5	44.0	2.03
69	3	240' - 250'	3	6.6	41.0	1.95

Date Reported. September 20, 1965

The Atlantic Refining Company

Laboratory Report Number. C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
70	3	240' - 250'	4	3.1	46.0	1.97
71	3	240' - 250'	5	8.7	39.0	2.04
72	3	240' - 250'	6	11.8	38.3	1.97
73	3	240' - 250'	7	4.3	41.5	1.95
74	3	240' - 250'	8	4.2	41.5	1.96
75	3	240' - 250'	9	2.1	43.7	2.10
76	3	240' - 250'	10	3.8	42.8	1.99
77	3	240' - 250'	11	4.5	41.5	2.13
78	3	250' - 262'	1	6.2	41.4	2.12
79	3	250' - 262'	2	1.8	38.2	2.08
80	3	250' - 262'	3	0.5	40.8	2.11
81	3	250' - 262'	4	1.6	36.7	2.14
82	3	250' - 262'	5	1.2	41.8	2.04
83	3	250' - 262'	6	2.8	42.1	1.93
84	3	250' - 262'	7	0.9	43.3	1.84
85	3	250' - 262'	8	3.1	20.8	2.10
86	3	250' - 262'	9	1.6	42.8	2.14
87	3	250' - 262'	10	1.4	44.5	1.94
88	3	250' - 262'	11	5.6	42.4	1.91
89	3	250' - 262'	12	3.9	44.9	2.03
90	3	250' - 262'	13	2.1	43.0	1.90
91	3	262' - 278'	1	2.0	42.9	2.03
92	3	262' - 278'	2	1.5	43.6	1.99
93	3	262' - 278'	3	1.8	39.3	2.03
94	3	262' - 278'	4	1.1	43.3	2.07
95	3	262' - 278'	5	4.2	41.7	2.04

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The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
96	3	262' - 278'	6	5.3	42.6	1.98
97	3	262' - 278'	7	1.1	42.2	2.08
98	3	262' - 278'	8	2.5	39.3	2.08
99	3	262' - 278'	9	1.0	40.4	2.07
100	3	262' - 278'	10	4.2	43.8	2.01
101	3	262' - 278'	11	5.1	42.5	1.93
102	3	262' - 278'	12	4.1	40.0	1.85
103	3	262' - 278'	13	2.5	46.2	1.96
104	3	262' - 278'	14	3.3	45.7	2.03
105	3	278' - 292'	1	3.9	46.3	1.92
106	3	278' - 292'	2	2.2	48.6	1.96
107	3	278' - 292'	3	2.2	48.0	1.93
108	3	278' - 292'	4	3.2	46.0	1.93
109	3	278' - 292'	5	2.6	44.1	1.85
110	3	278' - 292'	6	1.6	48.0	1.84
111	3	278' - 292'	7	4.0	48.5	1.85
112	3	278' - 292'	8	2.5	51.9	1.82
113	3	278' - 292'	9	4.8	42.7	1.84
114	3	278' - 292'	10	4.2	52.8	1.76
115	3	278' - 292'	11	4.6	51.7	1.80
116	3	278' - 292'	12	4.5	51.3	1.78
117	3	278' - 292'	13	3.3	42.8	1.83
118	3	278' - 292'	14	4.5	50.9	1.81
119	3	278' - 292'	15	2.2	52.9	1.77
120	3	292' - 306'	1	3.4	53.0	1.87
121	3	292' - 306'	2	1.8	55.0	1.86

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The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
122	3	292' - 306'	3	4.6	52.1	1.82
123	3	292' - 306'	4	2.3	50.2	1.87
124	3	292' - 306'	5	3.3	51.2	1.91
125	3	292' - 306'	6	1.6	56.8	1.82
126	3	292' - 306'	7	1.7	53.1	1.84
127	3	292' - 306'	8	1.5	52.5	1.93
128	3	292' - 306'	9	0.5	50.7	2.02
129	3	292' - 306'	10	1.8	52.6	1.87
130	3	292' - 306'	11	2.9	51.1	1.82
131	3	292' - 306'	12	0.8	47.6	1.88
132	3	292' - 306'	13	1.2	43.7	1.96
133	3	292' - 306'	14	3.6	44.2	1.85
134	3	306' - 319'	1	3.3	49.4	1.80
135	3	306' - 319'	2	3.2	50.2	1.88
136	3	306' - 319'	3	4.1	48.7	1.93
137	3	306' - 319'	4	3.4	47.7	1.85
138	3	306' - 319'	5	1.8	47.6	1.90
139	3	306' - 319'	6	1.8	41.3	1.86
140	3	306' - 319'	7	1.8	42.8	1.90
141	3	306' - 319'	8	0.1	37.9	2.02
142	3	306' - 319'	9	1.0	39.8	2.01
143	3	306' - 319'	10	0.8	36.4	1.99
144	3	306' - 319'	11	0.5	37.7	2.05
145	3	306' - 319'	12	0.3	22.8	2.15
146	3	306' - 319'	13	0.1	32.1	2.08
147	3	306' - 319'	14	0.3	33.5	2.13

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The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
148	3	319' - 334'	1	0.5	24.1	2.16
149	3	319' - 334'	2	1.2	34.3	2.21
150	3	319' - 334'	3	1.4	32.3	2.26
151	3	319' - 334'	4	0.5	31.0	2.23
152	3	319' - 334'	5	0.6	26.4	2.20
153	3	319' - 334'	6	0.2	25.1	2.26
154	3	319' - 334'	7	1.0	35.2	2.22
155	3	319' - 334'	8	0.3	25.7	2.28
156	3	319' - 334'	9	0.5	29.2	2.25
157	3	319' - 334'	10	0.1	29.9	2.18
158	3	319' - 334'	11	0.4	29.9	2.16
159	3	319' - 334'	12	1.0	31.5	2.20
160	3	319' - 334'	13	0.3	32.6	2.20
161	3	319' - 334'	14	0.6	30.0	2.19
162	3	319' - 334'	15	0.9	36.1	2.14
163	3	334' - 347'	1	1.0	38.1	2.08
164	3	334' - 347'	2	1.6	37.1	2.17
165	3	334' - 347'	3	0.3	35.8	2.15
166	3	334' - 347'	4	2.0	39.0	2.18
167	3	334' - 347'	5	4.8	37.3	2.12
168	3	334' - 347'	6	3.0	40.7	1.88
169	3	334' - 347'	7	5.4	43.1	2.11
170	3	334' - 347'	8	4.2	36.2	2.15
171	3	334' - 347'	9	4.8	37.4	2.11
172	3	334' - 347'	10	5.7	40.0	2.05
173	3	334' - 347'	11	2.4	36.1	2.03

Date Reported September 20, 1965

The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
174	3	334' - 347'	12	2.0	36.4	2.08
175	3	334' - 347'	13	2.9	32.5	2.14
176	3	347' - 360'	1	3.0	36.3	2.12
177	3	347' - 360'	2	3.1	34.7	2.07
178	3	347' - 360'	3	6.7	35.9	2.09
179	3	347' - 360'	4	4.8	31.6	2.16
180	3	347' - 360'	5	5.0	31.3	2.26
181	3	347' - 360'	6	3.5	33.7	2.20
182	3	347' - 360'	7	1.4	39.5	2.03
183	3	347' - 360'	8	6.6	40.6	1.96
184	3	347' - 360'	9	4.7	38.0	2.00
185	3	347' - 360'	10	1.8	33.9	2.16
186	3	347' - 360'	11	4.7	41.8	1.93
187	3	347' - 360'	12	3.0	37.5	2.09
188	3	347' - 360'	13	4.5	37.6	2.12
189	3	360' - 380'	1	3.8	34.7	2.07
190	3	360' - 380'	2	3.7	38.9	2.09
191	3	360' - 380'	3	5.2	35.5	2.10
192	3	360' - 380'	4	4.0	41.2	1.96
193	3	360' - 380'	5	5.4	34.2	2.14
194	3	360' - 380'	6	4.3	33.1	2.18
195	3	360' - 380'	7	7.2	44.7	2.19
196	3	360' - 380'	8	5.2	34.0	1.93
197	3	360' - 380'	9	6.4	39.6	1.98
198	3	360' - 380'	10	7.0	38.5	1.95
199	3	360' - 380'	11	3.8	30.5	2.58

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The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
200	3	360' - 380'	12	3.3	24.7	2.32
201	3	360' - 380'	13	3.5	51.3	1.83
202	3	360' - 380'	14	10.9	46.4	1.81
203	3	360' - 380'	15	4.1	47.4	1.95
204	3	380' - 396'	1	8.3	41.6	1.91
205	3	380' - 396'	2	7.5	45.1	1.91
206	3	380' - 396'	3	1.3	52.3	1.92
207	3	380' - 396'	4	13.0	48.6	1.73
208	3	380' - 396'	5	9.8	44.6	1.75
209	3	380' - 396'	6	12.2	50.9	1.76
210	3	380' - 396'	7	10.9	53.0	1.74
211	3	380' - 396'	8	4.4	55.4	1.87
212	3	380' - 396'	9	11.3	51.6	1.77
213	3	380' - 396'	10	9.9	48.3	1.68
214	3	380' - 396'	11	8.9	48.3	2.14
215	3	380' - 396'	12	0.1	35.4	2.10
216	3	380' - 396'	13	0.1	33.9	2.14
217	3	380' - 396'	14	0.4	32.3	2.17
218	3	380' - 396'	15	0.2	33.3	2.18
219	3	396' - 411'	1	0.6	32.8	2.18
220	3	396 - 411'	2	0.4	31.7	2.18
221	3	396' - 411'	3	0.3	32.6	2.17
222	3	396' - 411'	4	0.6	32.2	2.17
223	3	396' - 411'	5	0.2	33.1	2.17
224	3	396' - 411'	6	0.3	34.3	2.18
225	3	396' - 411'	7	0.1	33.3	2.18

Date Reported September 20, 1965

The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
226	3	396' - 411'	8	<0.1	34.4	2.17
227	3	396' - 411'	9	0.1	35.9	2.17
228	3	396' - 411'	10	0.2	33.5	2.19
229	3	396' - 411'	11	0.4	34.1	2.20
230	3	396' - 411'	12	0.3	33.2	2.19
231	3	396' - 411'	13	0.5	29.6	2.18
232	3	396' - 411'	14	0.3	33.3	2.19
233	3	396' - 411'	15	0.4	33.2	2.16
234	3	411' - 424'	1	0.4	33.0	2.20
235	3	411' - 424'	2	0.4	35.0	2.19
236	3	411' - 424'	3	0.8	35.9	2.15
237	3	411' - 424'	4	0.4	36.0	2.12
238	3	411' - 424'	5	0.3	35.1	2.16
239	3	411' - 424'	6	0.5	37.0	2.17
240	3	411' - 424'	7	0.4	37.0	2.13
241	3	411' - 424'	8	0.2	32.4	2.19
242	3	411' - 424'	9	0.4	34.2	2.19
243	3	411' - 424'	10	0.2	33.5	2.18
244	3	411' - 424'	11	0.4	31.9	2.20
245	3	411' - 424'	12	0.2	34.4	2.19
246	3	411' - 424'	13	0.2	34.2	2.18
247	3	411' - 424'	14	0.2	33.6	2.15
248	3	411' - 424'	15	0.4	37.6	2.17
249	3	424' - 444'	1	0.3	36.4	2.17
250	3	424' - 444'	2	0.4	37.9	2.15
251	3	424' - 444'	3	0.1	36.7	2.14

Date Reported September 20, 1965

The Atlantic Refining Company

Laboratory Report Number C7621

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
252	3	424' - 444'	4	0.3	38.2	2.11
253	3	424' - 444'	5	0.1	41.1	2.17
254	3	424' - 444'	6	0.2	38.8	2.17
255	3	424' - 444'	7	0.6	37.6	2.20
256	3	424' - 444'	8	0.5	36.9	2.16
257	3	424' - 444'	9	0.4	36.2	2.18
258	3	424' - 444'	10	0.4	35.8	2.17
259	3	424' - 444'	11	0.5	36.1	2.20
260	3	424' - 444'	12	0.2	36.7	2.20
261	3	424' - 444'	13	0.2	36.3	2.20
262	3	424' - 444'	14	0.1	37.4	2.23
263	3	424' - 444'	15	0.1	35.6	2.21
264	3	444' - 460'	1	0.4	35.8	2.19
265	3	444' - 460'	2	0.2	35.7	2.16
266	3	444' - 460'	3	0.3	35.8	2.15
267	3	444' - 460'	4	0.4	35.4	2.19
268	3	444' - 460'	5	0.3	36.1	2.18
269	3	444' - 460'	6	0.2	36.4	2.18
270	3	444' - 460'	7	0.5	36.0	2.18
271	3	444' - 460'	8	0.1	31.1	2.17
272	3	444' - 460'	9	0.3	37.6	2.17
273	3	444' - 460'	10	0.1	35.5	2.15
274	3	444' - 460'	11	0.2	37.7	2.14
275	3	444' - 460'	12	0.2	38.0	2.17
276	3	444' - 460'	13	0.4	33.3	2.15
277	3	444' - 460'	14	0.3	39.6	2.17

Date Reported September 20, 1965

The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
278	3	444' - 460'	15	0.3	37.8	2.16
279	3	460' - 475'	1	0.6	45.1	2.16
280	3	460' - 475'	2	0.6	39.3	2.15
281	3	460' - 475'	3	0.6	36.8	2.16
282	3	460' - 475'	4	0.5	36.8	2.11
283	3	460' - 475'	5	0.3	36.4	2.11
284	3	460' - 475'	6	0.3	36.6	2.15
285	3	460' - 475'	7	0.3	37.7	2.15
286	3	460' - 475'	8	0.2	36.6	2.16
287	3	460' - 475'	9	0.3	37.2	2.17
288	3	460' - 475'	10	0.4	36.9	2.17
289	3	460' - 475'	11	0.6	9.6	2.16
290	3	460' - 475'	12	0.4	37.6	2.16
291	3	460' - 475'	13	0.2	36.5	2.19
292	3	460' - 475'	14	0.4	36.4	2.20
293	3	475' - 488'	1	0.3	41.0	2.41
294	3	475' - 488'	2	0.3	41.3	2.17
295	3	475' - 488'	3	0.2	35.7	2.20
296	3	475' - 488'	4	0.6	34.7	2.24
297	3	475' - 488'	5	0.4	33.8	2.19
298	3	475' - 488'	6	0.2	30.8	2.19
299	3	475' - 488'	7	0.4	35.0	2.21
300	3	475' - 488'	8	0.4	36.9	2.08
301	3	475' - 488'	9	0.2	34.1	2.21
302	3	475' - 488'	10	0.1	35.1	2.21
303	3	475' - 488'	11	0.3	27.3	2.21

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The Atlantic Refining Company

Laboratory Report Number C7821

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
304	3	475' - 488'	12	0.3	34.6	2.21
305	3	475' - 488'	13	0.3	35.7	2.20
306	3	488' - 500'	1	0.6	37.1	2.21
307	3	488' - 500'	2	0.5	35.2	2.19
308	3	488' - 500'	3	0.6	36.0	2.17
309	3	488' - 500'	4	0.3	36.5	2.15
310	3	488' - 500'	5	0.8	37.4	2.16
311	3	488' - 500'	6	1.1	36.9	2.16
312	3	488' - 500'	7	0.5	38.5	2.16
313	3	488' - 500'	8	0.8	37.4	2.12
314	3	488' - 500'	9	0.5	38.6	2.25
315	3	488' - 500'	10	0.8	12.6	2.13
316	3	488' - 500'	11	0.9	37.7	2.17
317	3	488' - 500'	12	0.2	39.3	2.18

DRILLING PROGRAMME

Atlantic Core Hole No. 4

35' South of South Bdy. Sec 27 - 1 - 6 W
1320' West of East Bdy. Sec 27 - 1 - 6 W

Location: South of Lsd. 1, Sec. 27, Twp. 1, Rge. 6 W.P.M.

Project: To core the Vermilion River and Favel formations.

Elevation: Estimated ground elevation 1460'.

Total Depth: 585' or base of the Favel formation.

Surveys:

1. Induction Electric log.
   2" scale: T D. to surface casing.
   5" scale: T.D. to surface casing.

2. Formation Density log.
   2" scale: T.D. to surface at 500-1500 API counts.
   5" scale: T.D. to surface at 500-1500 API counts.

1 field copy each to (i) wellsite geologist
(ii) exploration - Calgary
(iii) Dallas

Coring: First core will be cut at 150', in the Vermilion River Boyne member and coring will be continuous to the base of the Favel formation at approximately 585'.

Samples: Drill cuttings will be caught from base of glacial drift to top of the Boyne member at ten foot intervals.

Estimated Formation Tops:

	Depth	Subsea
Cretaceous		
Riding Mountain	10	+1450
Pembina Mbr.	80	+1380
Boyne Mbr.	150	+1310
Morden Mbr.	290	+1170
Favel Fm.	465	+995
T.D.	585	+875

AB. DRY AUG 29/65

ATLANTIC REFINING COMPANY

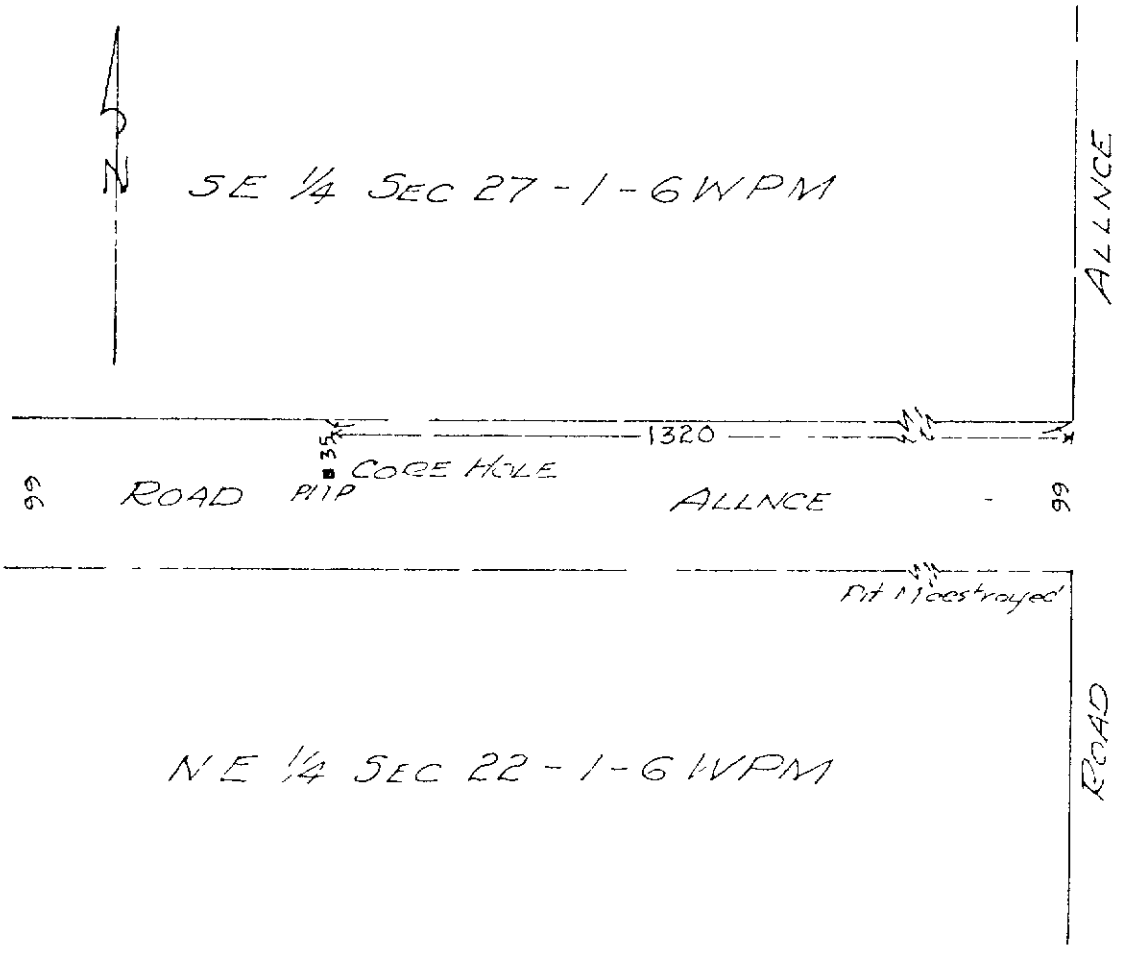
PLAN OF

CORE HOLE No 4 (27-1-6WPM)

Between Sections 22 & 27, Twp 1 Rge 6 WPM

MANITOBA

Scale 1 in = 100 Ft

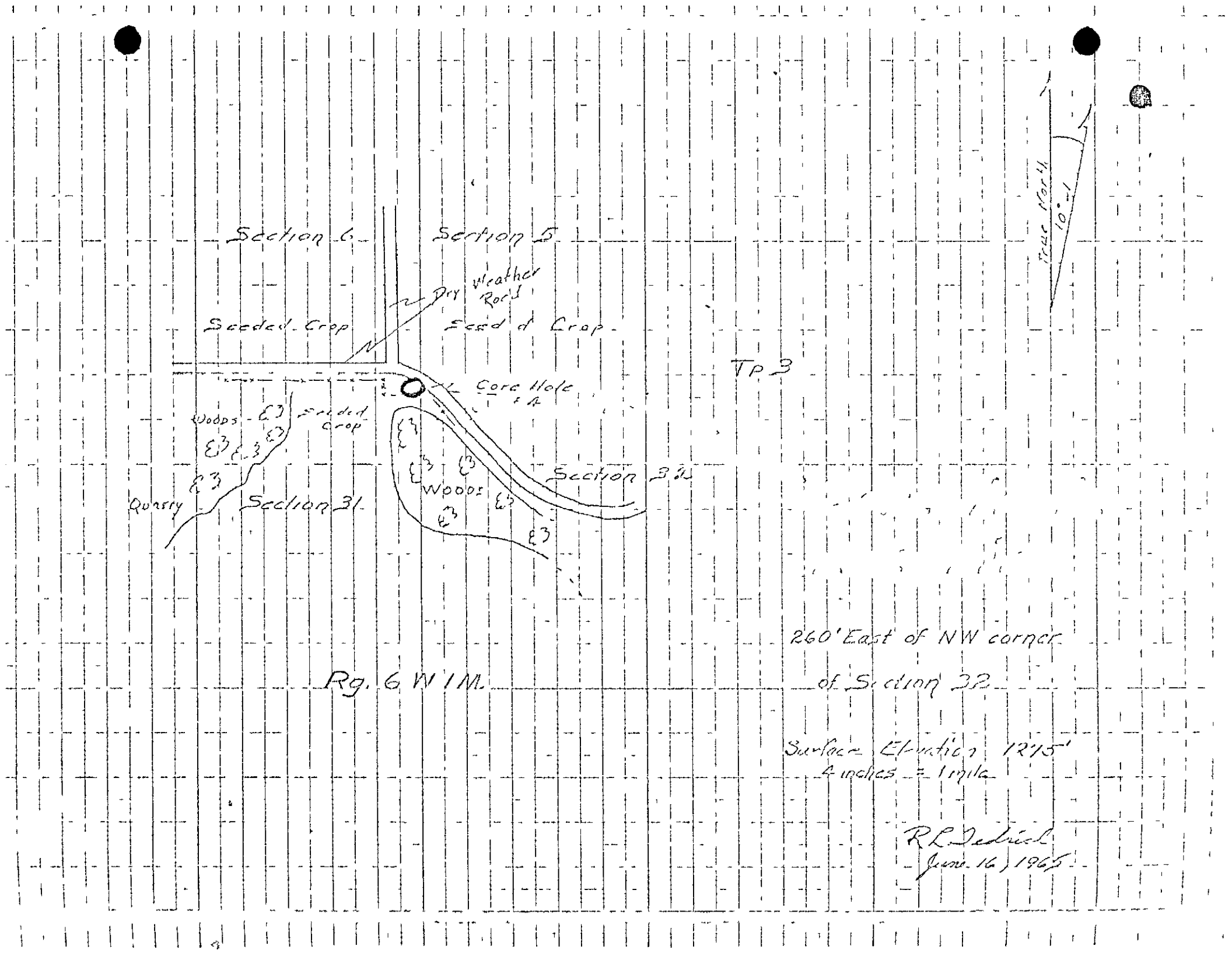


Ground elevation of core hole location is 1460 (by aneroid barometer) and is referred to Bench Mark 1534C in Morden

Survey and plan are certified correct
Survey was made July 15th, 1965

MLS

6JA719
15-18


Section 6
Section 5
Dry Weather Road
Seeded Crop
Seed d Crop
Core Hole #4
Woods
Seeded crop
Quarry
Section 31
Woods
Section 32
Tp 3
True North
10° = 1
260' East of NW corner
of Section 32
Surface Elevation 1275'
4 inches = 1 mile
R L Dedrick
June 16, 1965
Rg. 6 W 1 M.

(15)-3 #4

CHEMICAL & GEOLOGICAL LABORATORIES LTD

EDMONTON — CALGARY — FORT ST JOHN

CORE HOLE #4 (1-27-1-6WPM)

September 20, 1965

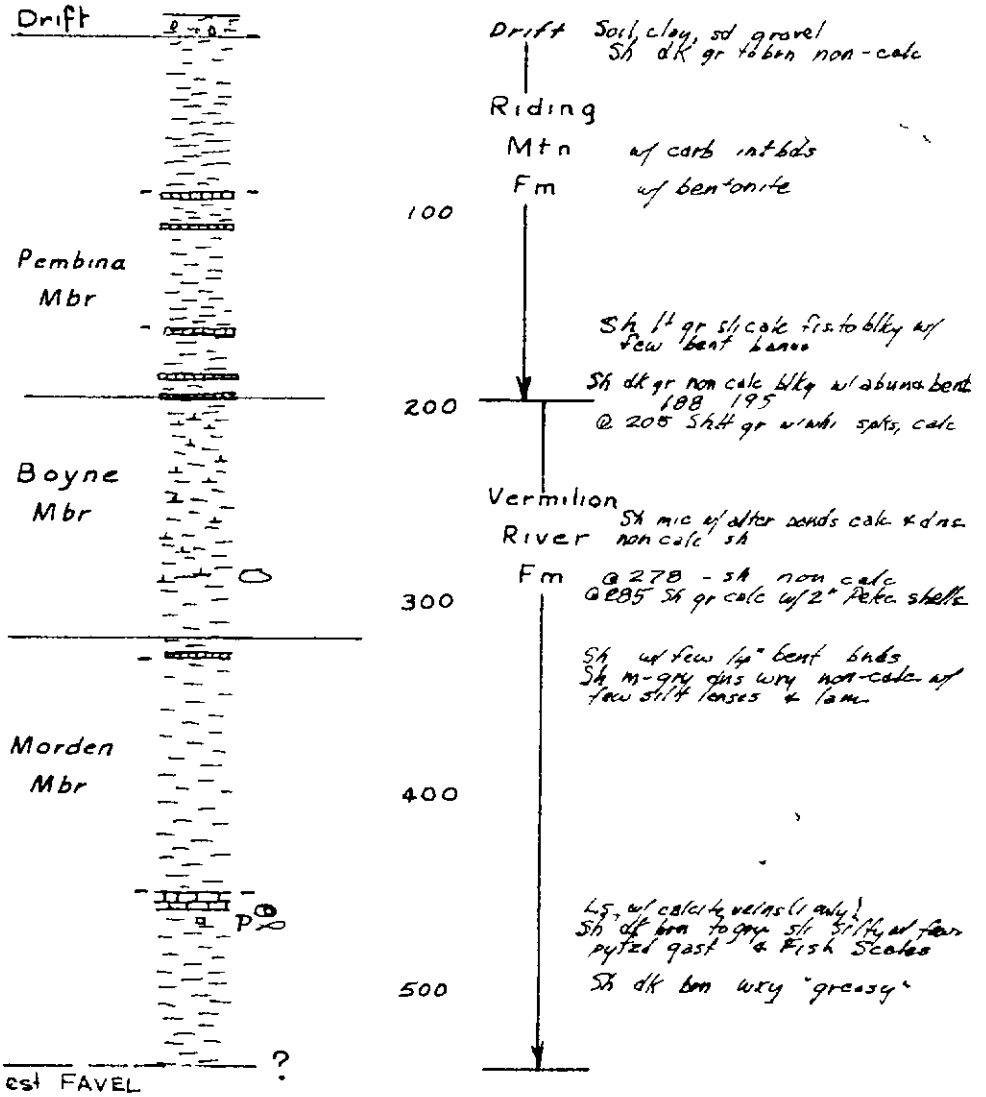
Laboratory Report Number C7872

The Atlantic Refining Company

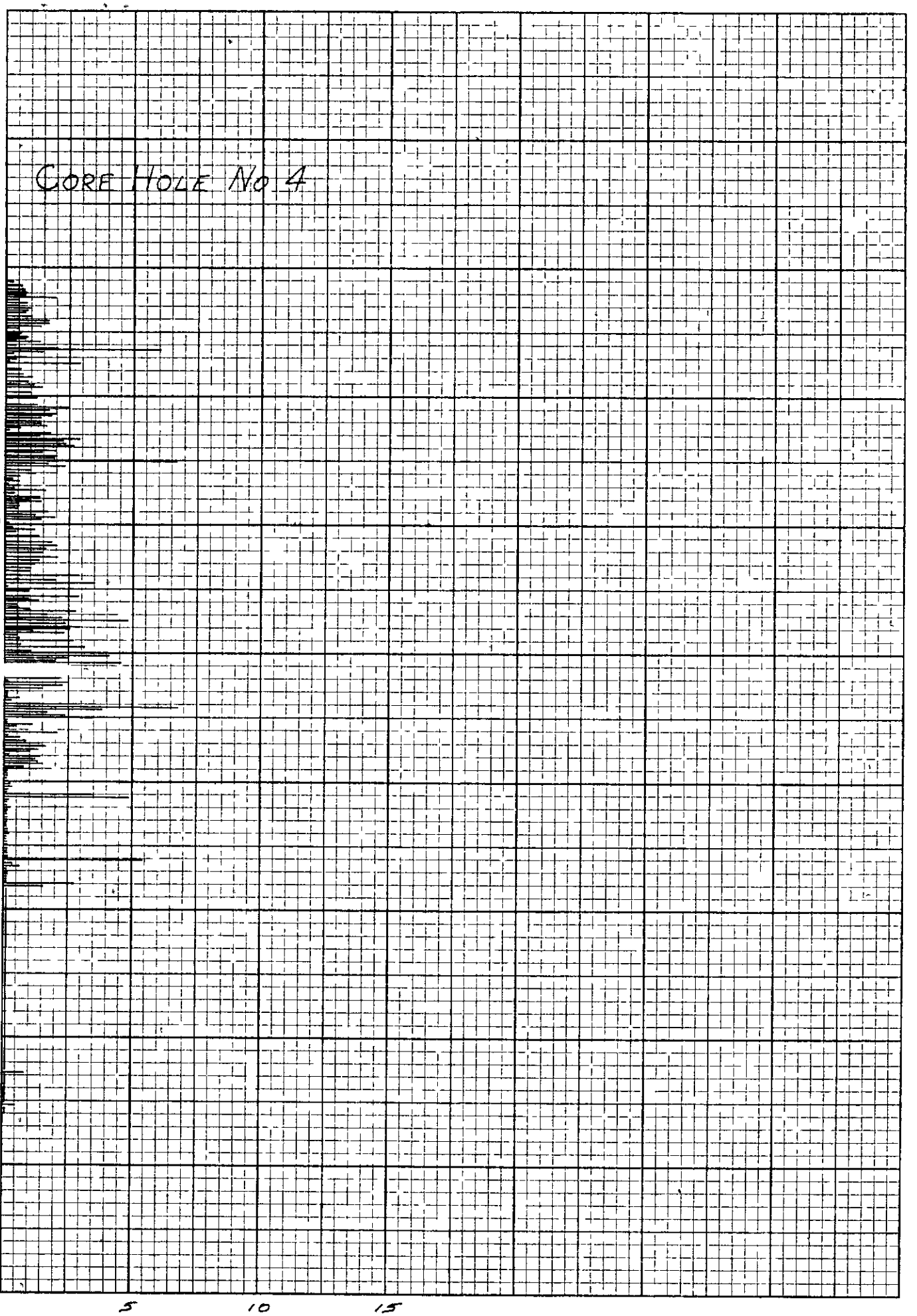
CORE HOLE
No 4

Lsd 1-27-1-6W1

KB 1460'



TD 540'



CHEMICAL & GEOLOGICAL LABORATORIES LTD

14240 115 AVENUE EDMONTON ALBERTA

Date Reported September 28, 1965 Laboratory Report Number C7872

THE ATLANTIC REFINING COMPANY

Location Lsd 1-27-1-6-W1M Kind of Sample. Core (Shale)

Date Received September 8, 1965

Composite Specific Gravity. 0.954
Composite A.P.I. Gravity 16.8

Yields Are In U.S. Gallons/Ton

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
1	4	188' - 210'	1	0.1	66.5	1.87
2			2	0.3	56.9	1.82
3			3	0.4	59.3	1.88
4			4	0.4	57.4	1.88
5			5	2.2	49.7	1.91
6			6	0.4	60.6	1.94
7			7	0.3	57.0	1.91
8			8	1.3	49.4	1.90
9			9	0.4	38.9	1.98
10			10	0.3	56.2	1.89
11			11	0.7	54.2	1.85
12			12	0.2	56.7	1.78
13			13	0.2	51.7	1.98
14			14	0.6	50.8	1.90
15			15	0.8	49.8	1.82
16	4	210' - 224'	1	0.7	48.8	1.93

Date Reported September 28, 1965

The Atlantic Refining Company

Laboratory Report Number C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
17	4	210' - 224'	2	0.7	49.6	1.93
18			3	1.9	55.5	1.89
19			4	0.5	50.4	1.92
20			5	0.8	48.9	1.93
21			6	0.7	49.2	1.95
22			7	1.0	50.5	1.93
23			8	0.9	53.8	1.84
24			9	0.7	60.1	1.93
25			10	1.5	51.5	1.83
26			11	1.0	55.9	1.90
27			12	1.7	58.8	1.89
28			13	1.7	55.0	1.76
29			14	1.3	54.4	1.87
30			15	0.5	51.7	1.84
31	4	224' - 235'	1	1.0	55.9	1.81
32			2	1.1	55.5	1.80
33			3	0.6	52.3	1.88
34			4	0.5	53.3	1.84
35			5	0.8	55.9	1.92
36			6	0.7	52.7	1.97
37			7	0.3	49.6	2.03
38			8	1.3	56.2	1.95
39			9	0.3	53.9	1.93
40			10	1.0	57.1	1.80
41			11	2.0	56.8	1.84
42			12	6.0	50.9	1.75

Date Reported: September 28, 1965

The Atlantic Refining Company

Laboratory Report Number C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
43	4	224' - 235'	13	1.4	56.7	1.84
44			14	0.2	54.8	1.75
45			15	0.7	53.2	1.91
46			16	0.8	58.7	1.86
47	4	235' - 255'	1	0.4	47.2	1.65
48			2	0.1	47.7	1.94
49			3	2.9	49.9	1.96
50			4	0.6	36.8	1.85
51			5	0.7	50.5	1.83
52			6	1.0	54.6	1.97
53			7	0.8	56.5	1.97
54			8	1.0	55.0	1.98
55			9	1.4	53.9	2.03
56			10	1.0	51.8	2.01
57			11	1.3	60.8	1.84
58			12	1.5	58.9	1.82
59			13	1.2	57.6	1.74
60			14	2.4	66.1	1.85
61	4	255' - 269'	1	1.5	58.8	1.85
62			2	1.9	46.1	2.02
63			3	1.7	49.3	1.91
64			4	0.9	48.4	1.90
65			5	1.3	50.7	1.83
66			6	1.3	52.5	1.81
67			7	1.6	54.7	1.73
68			8	0.6	46.0	1.70

Date Reported September 28, 1965

The Atlantic Refining Company

Laboratory Report Number. C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
69	4	255' - 269'	9	0.2	76.8	1.96
70			10	1.7	62.1	1.63
71			11	1.5	60.1	1.77
72			12	1.4	56.1	1.78
73			13	2.9	59.9	1.73
74			14	2.3	57.4	1.80
75			15	2.4	57.6	1.77
76			16	2.7	56.3	1.77
77	4	269' - 283'	1	2.3	61.4	1.73
78			2	1.9	59.5	1.86
79			3	1.4	60.4	1.72
80			4	2.0	56.3	1.77
81			5	1.9	58.1	1.81
82			6	4.3	58.0	1.67
83			7	6.7	58.1	1.79
84			8	1.7	54.4	1.81
85			9	2.3	59.4	2.12
86			10	1.0	52.4	1.85
87			11	0.5	44.0	2.19
88			12	1.2	50.1	1.82
89			13	0.6	53.6	2.09
90			14	0.3	41.5	2.11
91	4	283' - 297'	1	0.5	43.9	2.12
92			2	0.1	39.3	2.13
93			3	0.6	41.1	2.12
94			4	0.3	42.9	2.09
95			5	1.6	42.8	2.10

Date Reported September 20, 1965

The Atlantic Refining Company

Laboratory Report Number C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
96	4	283' - 297'	6	0.3	45.0	2.11
97			7	1.3	43.5	2.02
98			8	0.8	43.6	2.07
99			9	1.4	44.7	2.08
100			10	0.6	47.3	2.02
101			11	0.6	44.1	2.10
102			12	0.4	44.4	2.10
103			13	1.7	44.4	2.09
104			14	1.2	42.6	2.07
105			15	1.9	48.5	2.06
106	4	297' - 312'	1	1.3	46.1	2.03
107			2	0.1	44.4	2.07
108			3	0.8	47.3	2.03
109			4	1.3	41.8	2.11
110			5	0.3	41.4	2.09
111			6	1.2	42.3	2.11
112			7	0.4	41.3	2.07
113			8	1.3	40.5	2.07
114			9	1.0	41.4	2.01
115			10	1.8	45.6	1.97
116			11	2.0	47.3	1.97
117			12	1.7	48.9	1.98
118			13	1.6	43.5	1.96
119			14	1.4	41.4	2.07
120			15	2.1	45.7	2.03
121	4	312' - 326'	1	2.1	47.9	1.91
122			2	1.3	37.2	2.25

Continued ..... Page 6

Date Reported: September 28, 1965

The Atlantic Refining Company

Laboratory Report Number C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
123	4	312' - 326'	3	1.0	43.4	2.05
124			4	1.2	45.6	2.04
125			5	1.0	43.5	1.98
126			6	1.0	44.2	2.04
127			7	1.0	44.4	2.01
128			8	2.8	42.3	1.94
129			9	2.5	45.2	1.93
130			10	1.9	44.4	2.05
131			11	3.7	22.1	2.15
132			12	0.1	42.7	1.98
133			13	2.4	45.2	2.00
134			14	0.9	47.2	1.99
135	4	326' - 340'	1	0.5	43.3	2.04
136			2	2.8	48.9	2.02
137			3	0.9	45.0	2.03
138			4	1.3	49.3	2.00
139			5	0.1	51.2	2.02
140			6	0.4	41.8	2.13
141			7	0.4	46.7	2.06
142			8	0.8	44.1	2.06
143			9	2.7	50.4	2.03
144			10	1.6	47.9	2.01
145			11	2.2	49.9	1.92
146			12	3.0	57.1	1.86
147			13	2.3	51.3	1.95
148			14	4.9	49.5	1.96
149			15	2.8	51.7	1.95

Date Reported: September 28, 1965

The Atlantic Refining Company

Laboratory Report Number C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
150	4	340' - 353'	1	2.5	52.3	1.99
151			2	1.1	47.1	2.03
152			3	2.3	46.2	2.02
153			4	0.5	38.3	2.07
154			5	0.6	32.4	2.23
155			6	2.7	47.2	2.23
156			7	0.7	35.7	2.06
157			8	3.2	48.1	2.16
158			9	2.5	53.7	1.98
159			10	1.0	58.2	1.92
160			11	4.1	46.3	2.06
161			12	2.4	35.3	2.05
162			13	1.9	54.9	1.98
163			14	4.6	51.8	1.94
164	4	360-431 - see end pp 10,11,12 431' - 445'	1	5.3	34.7	2.18
165			2	0.3	38.1	2.15
166			3	0.6	40.0	2.13
167			4	<0.1	27.2	2.16
168			5	<0.1	38.6	2.18
169			6	<0.1	41.9	2.17
170			7	<0.1	40.9	2.20
171			8	<0.1	42.5	2.15
172			9	2.7	43.0	2.17
173			10	1.6	37.8	2.17
174			11	<0.1	42.8	2.16
175			12	<0.1	41.5	2.05
176			13	<0.1	42.1	2.12
177			14	<0.1	43.0	2.17

Continued ..... Page 8

Date Reported: September 28, 1965

The Atlantic Refining Company

Laboratory Report Number C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
178	4	431' - 445'	15	<0.1	40.1	2.13
179	4	450'		<0.1	41.3	2.14
180	4	455'		<0.1	44.9	2.16
181	4	460'		<0.1	41.3	2.13
182	4	465'		<0.1	44.9	2.14
183	4	470'		<0.1	46.0	2.15
184	4	475'		<0.1	43.2	2.15
185	4	480'		<0.1	41.8	2.17
186	4	485'		<0.1	40.8	2.18
187	4	490'		<0.1	43.0	2.18
188	4	495'		<0.1	39.1	2.19
189	4	500'		<0.1	40.7	2.14
190	4	503'		<0.1	34.3	2.17
191	4	508'		<0.1	38.9	2.17
192	4	513'		0.8	40.3	2.13
193	4	517'		<0.1	37.5	2.13
194	4	522'		<0.1	42.4	2.12
195	4	527'		0.5	42.4	2.12
196	4	532'		0.1	46.9	2.12
197	4	537'		0.1	39.9	2.12
198	4	540'		<0.1	41.1	2.13
199	4	515'		<0.1	38.1	2.12
200	4	516'		<0.1	34.1	2.11
201	4	518'		<0.1	40.4	2.11
202	4	519'		<0.1	38.4	2.09
203	4	520'		<0.1	37.9	2.11

Continued ..... Page 9

Date Reported September 28, 1965

The Atlantic Refining Company

Laboratory Report Number C7872

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
204	4	521'		<0.1	39.9	2.12
205	4	523'		<0.1	41.2	2.10
206	4	524'		<0.1	40.7	2.12
207	4	526'		<0.1	40.8	2.16
208	4	528'		<0.1	40.0	2.12
209	4	529'		<0.1	41.6	2.10
210	4	530'		<0.1	39.9	2.06

CHEMICAL & GEOLOGICAL LABORATORIES LTD

Date Reported October 22, 1965 Laboratory Report Number. C7948

THE ATLANTIC REFINING COMPANY

Well Lsd. 1-27-1-6 W1 Kind of Sample Core

Date Received September 8, 1965 Core Hole Number 4

Specific Gravity 0.954 at 60/60°F.
A.P.I. Gravity: 16.8° at 60/60°F.

Yields are reported in U.S. gallons

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
1	4	360'-374'	1	2.2	37.3	1.99
2			2	< 0.1	43.0	2.05
3			3	2.5	35.5	2.16
4			4	2.3	37.9	2.08
5			5	1.5	38.7	2.12
6			6	0.1	38.5	2.13
7			7	< 0.1	37.1	2.15
8			8	< 0.1	42.4	1.99
9			9	0.6	29.3	2.41
10			10	4.2	41.1	1.88
11			11	2.8	40.8	1.80
12			12	6.7	52.0	1.86
13			13	3.8	42.5	2.12
14			14	1.6	38.7	2.12
15		374'-389'	1	2.4	37.4	2.09
16			2	3.4	36.7	2.11
17			3	< 0.1	37.3	2.08
18			4	< 0.1	40.5	2.05

Date Reported October 22, 1965

The Atlantic Refining Company

Laboratory Report Number C7948

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
19	4	374'-389'	5	1.1	38.7	2.15
20			6	0.5	38.0	2.13
21			7	< 0.1	40.8	2.15
22			8	2.0	37.8	2.16
23			9	< 0.1	38.3	2.09
24			10	0.6	38.4	2.15
25			11	0.8	40.5	2.15
26			12	1.3	40.7	2.16
27			13	1.6	37.6	2.15
28			14	1.3	38.5	2.13
29			15	0.9	38.7	2.15
30	4	389'-403'	1	0.2	39.0	2.15
31	4	389'-403'	2	1.4	37.9	2.16
32			3	1.0	36.9	2.17
33			4	1.3	37.4	2.13
34			5	1.5	38.5	2.17
35			6	0.7	38.7	2.13
36			7	1.3	37.0	2.19
37			8	< 0.1	40.0	2.12
38			9	< 0.1	40.0	2.13
39			10	0.1	39.0	2.13
40			11	< 0.1	40.4	2.08
41			12	0.1	38.4	2.14
42			13	0.2	37.0	2.17
43			14	0.3	37.3	2.18
44	4	403'-417'	1	< 0.1	37.7	2.17
45			2	< 0.1	38.0	2.13
46			3	3.4	36.3	2.12

Date Reported October 22,1965

(12)

The Atlantic Refining Company

Laboratory Report Number C7948

NUMBER	HOLE	INTERVAL	BAG NUMBER	OIL GAL/TON	WATER GAL/TON	BULK DENSITY
47	4	403'-417'	4	4.8	34.9	2.14
48			5	< 0.1	39.8	2.13
49			6	< 0.1	38.4	2.13
50			7	< 0.1	38.4	2.17
51			8	0.2	40.6	2.17
52			9	< 0.1	40.3	2.17
53			10	0.1	37.9	2.17
54			11	< 0.1	40.1	2.14
55			12	< 0.1	42.0	2.15
56			13	< 0.1	39.1	2.17
57			14	< 0.1	37.4	2.15
58	4	417'-431'	1	< 0.1	37.6	2.19
59			2	< 0.1	38.8	2.17
60			3	< 0.1	38.2	2.15
61	4	417'-431'	4	< 0.1	37.3	2.08
62			5	< 0.1	39.2	2.11
63			6	< 0.1	39.2	2.12
64			7	< 0.1	42.7	2.13
65			8	< 0.1	41.0	2.09
66			9	< 0.1	41.0	2.13
67			10	< 0.1	42.3	2.15
68			11	< 0.1	7.6	2.71
69			12	< 0.1	42.2	2.13
70			13	< 0.1	41.3	2.07
71			14	< 0.1	40.9	2.14

Oil Shale reconnaissance map of the Manitoba Escarpment

Scale : 0 20 40 miles

Tentative Core-Hole Location

SASKATCHEWAN

MANITOBA

United States

PALAEOZOIC

MESOZOIC-CENOZOIC

UNDIVIDED

LINE OF CROSS-SECTION

Riding Mtn. Fm.

Favel Fm.

Vermillion Fm.

Atlantic Acreage

289,761 Ac.

671,040 Ac.

393,395 Ac.

2,000,000 Ac.

1,500,000 Ac.

Carrot R. 5-6 Gal/Ton

Jordan R. 11 Gal/Ton

Checkerboard R. 7-12 Gal/Ton

Swan River 5-100 l/Ton

Main River 8 Gal/Ton

Comp Shyld Military Reserve

Spruce Woods Forest Reserve

Ks

Ka

Kr

Lake Winnipeg

(15-1)

MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
MINES BRANCH

Atlantic Refining Co.
Sun Oil Co. +
Aquitaine Co.
MB 1965

142

OIL SHALE RESERVATIONS

SUN
AQUITAINE
ATLANTIC REF. CO.

0 8 6 32 48 64
MILES

55° 101° 100° 99° 98°
54° 53° 52° 51° 50° 49°
47 46 45 44 43 42 4 40 39 38 37 36 35 34 33 32 3 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
29 28 27 26 25 24 23 22 18 17 16 15 14 13 12 11 10 9 3 2 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
95°

GRASS RIVER PROVINCIAL PARK
Cranberry Portage
Reed Lake
CORMORANT FOREST
Cormorant Lake
CLEARWATER PROVINCIAL PARK
Atikameg L.
RESERVE
Moose Lake
The Pas
Saskatchewan River
Cedar Lake
Red Deer Lake
Dawson Bay
Swan Lake
PORCUPINE FOREST RESERVE
DUCK MOUNTAIN FOREST RESERVE
Winnipegosis
Dauphin Lake
Dauphin
RIDING MOUNTAIN NATIONAL PARK
Assiniboine
BRANDON
SPRUCE WOODS FOREST RESERVE
TURTLE MT. FOREST RESERVE
Portage La Prairie
WINNIPEG
ST BONIFACE
Red River
Cross Lake
Nelson River
Playgreen Lake
Reindeer Island
Berens I.
Berens River
Lake St. Martin
Hecla I.
Black I.
Winnipeg River
WHITESHELL FOREST RESERVE
SANDILANDS FOREST RESERVE

SASKATCHEWAN
MANITOBA
ONTARIO
WINNIPEG LAKE
PRINCIPAL MERIDIAN
U. S. A.

MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
MINES BRANCH

Atlantic Refining Co.
Sun Oil Co.
Aquitaine Co
MB 1965

OIL SHALE RESERVATIONS

SUN

AQUITAINE

ATLANTIC REF. CO.

0 8 16 32 48 64
MILES

55° 101° 100° 99° 98° 95°
54° 53° 52° 51° 50° 49°

GRASS RIVER PROVINCIAL PARK
Cranberry Portage
Reed Lake
CORMORANT FOREST
Cormorant Lake
CLEARWATER PROVINCIAL PARK
Atikameg L.
RESERVE
Moose Lake
The Pas
Saskatchewan River
Cedar Lake
Red Deer Lake
Dawson Bay
Swan Lake
PORCUPINE FOREST RESERVE
DUCK MOUNTAIN FOREST RESERVE
Winnipegosis
Dauphin Lake
Dauphin
RIDING MOUNTAIN NATIONAL PARK
Assiniboine River
BRANDON
SPRUCE WOODS FOREST RESERVE
Portage La Prairie
TURTLE MT. FOREST RESERVE
Lake Winnipeg
Lake Manitoba
Lake St. Martin
Reindeer Island
Berens I.
Berens River
Cross Lake
Playgreen Lake
Nelson River
Hecla I.
Black I.
PRINCIPAL MERIDIAN
WINNIPEG
ST BONIFACE
Red River
Winnipeg River
WHITESHELL FOREST RESERVE
AGASSIZ FOREST RESERVE
SANDILANDS FOREST RESERVE
NORTHWEST ANGLE FOREST RESERVE
ONTARIO
SASKATCHEWAN

U. S. A.