

IMPERIAL

VERMILION RIDGE

NO. 1

Drilling Authority No.

Date Issued

WELL NAME Imperial Vermilion Ridge No. 1

FIELD Wildcat

Area: Norman Wells

LOCATION: Unit

Section

Grid GS 10-126 15

Latitude 65°07'51" N.

Longitude 126°05'00" W.

From Established Reference Marker

Rig Release Date: 3-4-45

Status D & A

Information Release Date 3-4-67

CHANGE OF NAME:

| DATE RECEIVED | INDEX |
|---------------|--|
| | Application for a Drilling Authority. Well Completion Data. Well History Report. |
| | Application to Amend a Drilling Authority. |
| | Application to change a Well Name. |
| | Application to Abandon a Well or Suspend Drilling. |
| | Application to Alter Condition of a Well. Well History Supplement. |
| MAR 22 | Well Completion Data. Work-over Report No. |
| | Application to Commingle Production before Measurement. |
| | Approval to Commingle Production before Measurement. |
| | Application to Amend Approval No. to Commingle Production before Measurement. |
| | Application for M.P.R.—Oil. |
| | New Oil Well Report. |
| | New Gas Well Report. |
| | Well Inspection Report. |
| | Rig Inspection Report. |
| | Battery Inspection Report. |
| | Field Abandonment Programme and Approval. |
| | Well Card. |
| | Well Visit. |
| | Daily Drilling Reports. |



CANADA

Drilling Authority No.

Date Issued

DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES
Resources Division

WELL COMPLETION DATA

(To be submitted in duplicate within thirty days after the completion rework, abandonment, recompletion or suspension of every well.)

Well name and number IMPERIAL VERMILION RIDGE #1

Permit No. P. & NG. #163 Lease No.

Imperial Oil Limited Exploratory Licence No. Not available
(Permitter, Licensee, Lessee)

Imperial Oil Limited Exploratory Licence No. Not available
(Operator)

Location: Unit 0 Section 18 Grid 65°10' - 126°15'

Latitude 65°07'51" N Longitude 126°05'00" W

From Established Reference Marker S. 5980 E. 5780 from Post #1 of Vermilion Ridge #6

| | DATE | DEPTH | Pool (S) |
|--------------------|-----------|-------|---|
| Spudded | Dec. 4/44 | | Interval(s) open to production |
| Suspended | | | |
| Returned | | | |
| Finished Drilling | | | |
| Deepened | | | Elevation: Gr. |
| Complete (gas/oil) | | | K.B. 925 |
| Abandoned | Apr. 3/45 | 5972 | Drilling Contractor & Rig No. I.O.L. |
| Rig released | Apr. 3/45 | 5972 | Contractor's Licence No. |

CASING RECORD

| Casing Size (Inches) | Weight | Amount | Set at | Sacks of Cement | Method |
|----------------------|--------|--------|--------|-----------------|--------|
| 1. 10 3/4 | | | 283 | 80 | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |

| GEOLOGICAL TOPS | ELEVATION | | CORE RECORD | | | | | |
|-----------------|-----------|---------|-------------|------|------|------|----|------|
| | Depth | Sub-Sea | From | To | Rec. | From | To | Rec. |
| Rampart | 470 | + 455 | 480 | 506 | | | | |
| Bear Rock | 853 | + 72 | 845 | 945 | | | | |
| Ronning Group | 1297 | - 372 | 1333 | 1353 | | | | |
| MacDougal Group | 2799 | -1874 | 995 | 1072 | | | | |
| | | | 1819 | 1839 | | | | |
| | | | 2103 | 2121 | | | | |
| | | | 2374 | 2394 | | | | |
| | | | 2650 | 2668 | | | | |
| | | | 2601 | 2821 | | | | |
| | | | 4450 | 4470 | | | | |
| | | | 5255 | 5275 | | | | |
| | | | 5788 | 5806 | | | | |
| | | | 5952 | 5972 | | | | |

LOG RECORD

| Run No. | Type of Log | From | To |
|---------|-------------|------|------|
| 1 | Electric | 238 | 4948 |

| CEMENTING RECORD (Plug, Squeeze, etc.) | | | PERFORATING RECORD (Bullet, Jet) | | | SERVICING RECORD (Acidizing, Fracing, etc.) | | | | | |
|--|----------|------|----------------------------------|------|------|---|---------|------|------|----|---------|
| Date | From | To | Remarks | Date | From | To | Remarks | Date | From | To | Remarks |
| | 3298 | 3350 | C 25 | | | | | | | | No acid |
| | 848 | 900 | C 25 | | | | | | | | |
| | 508 | 560 | C 25 | | | | | | | | |
| | Sur face | | C 25 | | | | | | | | |

DRILL STEM TESTS

| No. | Date | Formation | From | To | V.O. Min. | I.S.I. Min. | F.S.I. Min. | I.S.I.B.H.P. | F.S.I.B.H.P. | I.F.B.H.P. | F.F.B.H.P. | I.H.P. | F.H.P. | REMARKS |
|-----|------|-----------|------|------|-----------|-------------|-------------|--------------|--------------|------------|------------|--------|--------|---|
| 1 | | | | | | | | | | | | | | Recovered 10' of mud.) |
| 2 | | | 855 | 895 | | | | | | | | | | Recovered 60' of mud.) no evidence of |
| 3 | | | 907 | 915 | | | | | | | | | | Recovered 40' of mud.) oil, gas or water. |
| 4 | | | 1000 | 1022 | | | | | | | | | | Recovered 480' of mud) |
| | | | 1032 | 1072 | | | | | | | | | | |

| Lab. No. | Sample | From | To | Source | Remarks | PRESENT STATUS OF WELL | | | | | | | | |
|----------|--------|------|----|--------|---------|------------------------|------------|--|--|--|--|--|--|--|
| | | | | | | Oil | (Interval) | | | | | | | |
| | | | | | | Gas | (Interval) | | | | | | | |
| | | | | | | Dry | Abandoned | | | | | | | |
| | | | | | | Susp. | | | | | | | | |

Company: **Imperial Oil Limited**
Signed by: **COPY (ORIGINAL SIGNED) R. F. HUGH**
Total: **Well File Clerk**
Date: **XXXXX November 20/1961**

Forms to be prepared in duplicate and forwarded to the Oil Conservation Engineer, Calgary, Alberta.

28983

VERMILION RIDGE NO. 1.

Coordinates. S. - 5,980'
E. - 5,780'

Elevation:- 1055'
(Rotary Table)

From Post No. 1 of Vermilion Ridge No. 6

- 0' - 470' Lower Fort Creek shales. Dark brownish-grey, hard shales, strongly bituminous, with pyrite very common.
- 470' - 640' Beavertail-Ramparts limestone. Grey to brown, finely crystalline, hard, dense, barren limestone. Cores were taken from 480' - 506'.
- 640' - 853' Beavertail-Ramparts limestone and shales. Dark grey limestone with shale and limey shales.
- 853' - 1297' Bear Rock dolomite. Hard, fine grained to crystalline, dense, brownish dolomitic limestone, at times pyritic, with carbonaceous partings quite common. Anhydrite present below 1090'. Cored from 845' - 945', and 995' - 1072'.
- 1297' - 2799' Mount Roming, (Silurian). Grey to brown dolomitic limestones, generally crystalline, hard and dense, interbedded with anhydrite and few shale breaks. Cored from 1333' - 1353', 1819' - 1839', 2103' - 2121', 2374' - 2394', and 2650' - 2668'.
- 2799' - 3369' Green and Red Shale Series. Silurian or Ordovician green and red shales, with dolomitic limestone and gypsum. Cored from 2801' - 2821'.
- 3369' - 5582' Rock Salt Series. Silurian or Ordovician. Chiefly rock salt, colorless to white, often buff tinted, with limey siltstone and gypsum breaks present from 4402' - 4470' and from 4656' - 5250'. Cored from 4450' - 4470', and 5255' - 5275'.
- 5582 - 5972' Shale Series. Middle Cambrian. Dark grey, hard, brittle shales, commonly greenish to purplish-tinted, slightly calcaceous at times. Cores taken from 5783' - 5806' and from 5952' - 5972' were abundantly fossiliferous, chiefly Middle Cambrian trilobites (Rathyriscus types), and also Lingula, Obolus.

Formation tests showed no evidence of oil, water or gas. Contacts below 2800' are not evident on the electrolog.

Total Depth - 5972'

This well was drilled by means of a rotary rig and an electrolog was taken from 238' - 4948'.

R. D. Sluzar

POOR COPY

289-83

NOTICE OF INTENTION TO ABANDON A WELL

Notice to be forwarded, in duplicate, to the Director, Lands, Parks, and Forests Branch, Department of Mines and Resources, Ottawa.

Notice is hereby given, as required by Section 53 of the P. & A. G. Regulations, dated January 28th, 1943, that it is the intention on or about the day of April 3 19 45 to abandon Well Vermilion Ridge No. 1 Elevation 1055 feet, located on P. & M.G. Permit No. 169 55980' E5780' from Post No. 1 of Vermilion Ridge No. 6

Registered in the name of Imperial Oil Limited by agent A.L. Laberge

The reasons for abandonment are:-

No productive horizons encountered

Oil, gas and water were encountered as follows and will be shut off as outlined below:-

Oil:-

Gas:-

Water:-

Water rose to (80' near the surface).

The depth drilled to was 5972 feet and the following casings were installed:-

| Diameter | Depth Feet | Weight | Free, set or cemented | The intention is to withdraw feet. |
|----------|------------|----------|-----------------------|------------------------------------|
| 10 1/2" | 283' | 40.5#/ft | Cemented 80 sacks | 31' |

No other strings of Casing run

Remarks: The abandonment procedure will be carried out by spotting four cement plugs as follows:

- (1) 3298' to 3350' - 25 sacks
- (2) 848' to 900' - 25 sacks
- (3) 508' to 560' - 25 sacks
- (4) Surface - 25 sacks

The top section of surface casing will be pulled before spotting the surface plug, and the location will be identified with a metal marking plate bearing the inscription "Imperial Oil Limited - Vermilion Ridge No. 1" welded to pipe set upright in the surface plug.

Approved:

Dr. J. S. Stewart
Supervisory Engineer

Bureau of Lands, Parks and Title
Forests Branch
Department of Mines and Resources

At the Wells

Signature

Norman Wells, N.W.T.

Date:

28983

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES

NORTHWEST TERRITORIES BRANCH

WELL COMPLETION REPORT

As required by Section 31, sub-clause 3 of Petroleum & Natural Gas Regulations.

Field or Region... **NORMAN WELLS, N.W.T.** Designation of well... **VERMILION RIDGE NO. 1**

Lease or Permit No. **P. & N.G. NO. 169** Registered owner... **IMPERIAL OIL LIMITED**

35988² E5760² from Post No. 1 of Vermilion Ridge No. 6 Elevation... **1855 (RT)**

Date Operations commenced... **December 4, 1944** Date completed... **April 3, 1945**

Type of Rig... **Emaco Skid Rotary** Completed depth... **5972'**

Deviations from Vertical... **135'-1° 218'-1° 345'-1° 440'-1°**

CASING & TUBING RECORD

| Size | Weight | Thread | Depth | Cemented with |
|---------|--------------------------------|--------|-------|--------------------|
| 10 1/2" | 40.5#/ft | 82 | 283' | 80 sacks Dec. 8/44 |
| | | | | |
| | No other strings of casing run | | | |

Distance between Rotary table (or derrick floor) and well head.....

Gun Perforations... **None**

Nitro-glycerine... **None**

Initial Acid treatments... **None**

Initial Production Data... **None**

Water encountered and how shut off... **None**

Remarks: **Well abandoned as a dry hole on April 3/45 as per abandonment notice**

GEOLOGIC LOGS

Electric Logs taken... **238' to 4943'**

Cores taken... **(1) 480'-506' (2) 845-895' (3) 995'-1072' (4) 1333'-1353' (5) 1819'-1839'**

(6) 2163'-02121' (7) 2374'-2394' (8) 2650'-2668' (9) 2801'-2821' (10) 4450'-4470'

(11) 5255'-5275' (12) 5788'-5806' (13) 5952'-5972'

SUMMARY LOG

Depth

Nature of Rock

P.T.O.

(if more space required use back of page)

SUMMARY LOG

| <u>DEPTH</u> | <u>NATURE OF ROCK</u> |
|----------------|--|
| 0' to 470' | Lower Fort Creek Shale |
| 470' to 853' | Beavertail - Ramparts Series |
| 853' to 1297' | Ear Rock Dolomite |
| 1297' to 2799' | Mount Roming (Silurian) |
| 2799' to 3369' | Green and Red Shale Series |
| 3369' to 4410' | Salt Series: Pure rock salt Salt with Shale Gypsum and Siltstone |
| 4410' to 5582' | |
| 5582' to 5972' | Cambrian Shale Series |

cc Dept. of Mines & Resources(2)
Toronto
Edmonton
Mr. P. F. Shannon
Pet. Eng. 91.0 V.R.1

POOR COPY

NOTICE OF INTENTION TO BEGIN OILFIELD OPERATIONS

NOTICE to be forwarded, in duplicate, to the Director, Lands, Parks, and Forests Branch, Department of Mines and Technical Surveys, Ottawa, at least 15 days before work is begun.

November 9 1944

Sir:

Notice is hereby given as required by Section 57, sub-section 1 of the Petroleum and Natural Gas Regulations, dated June 30, 1944, that it is our intention to begin boring a well on P. & N. O. Permit No. 169 on or about the 14 day of November 1944

standing in the name of Imperial Oil Limited

and located 25 miles upstream from Norman Wells on the right bank of the Mackenzie River, on the west side and approximately 5 miles from the mouth of Vermilion Creek. (Give below distances from landmarks)

Being 5980 feet south and 5780 feet east of Post No. 1 Vermilion Ridge #6

The well shall be known as Vermilion Ridge No. 1

to be drilled using the following equipment:-

| Type of drilling rig: | | Rotary | | New/Used | | XXX | |
|-----------------------|--------|---------|-------|----------|-------|----------------------|--|
| CRIBS | | | | | | | |
| Size | Weight | Threads | Brand | How Used | Depth | How Set | |
| 10 3/4" | 40½ | 8 Rd. | Spang | New | 275 | Cemented 75 sacks | |
| 7" | 24½ | 8 Rd. | Spang | New | 600 | Cemented 50 sacks | |

We expect to encounter the following oil, water, and gas horizons and propose taking care of them as follows: (We will inform you of any changes in this programme.)

Sulphur Water at 50 to 100 feet
Oil & Gas, Possibly at 600' & 1,000 feet
Probable depth of Well - 1500 feet.

The well is to be drilled by Company/Contractor. If Contractor give name.

The officers in charge of the operations will be:

At the Well P. W. Lambright
Field Supt. 1
Name of Permittee Imperial Oil Limited
Approved

Of the Company
Signature P. W. Lambright P.
Title P.W. Lambright - Project Manager

Boring

By 1

NOTICE OF INTENTION TO BORER

NOTICE to be forwarded in duplicate to the Director, Lands, Forests and Parks Branch, Department of Mines and Technical Surveys.

November 9

1944

Sir:

Notice is hereby given as required by Order-in-Council P.C. 2017 dated March 26, 1943, that it is our intention to begin ^{Boring} well on P. & H. G. Permit No. 169 on or about the 14 day of November 1944.

Standing in the name of Imperial Oil Limited

and located 25 miles upstream from Norman Wells on the right bank of the Mackenzie River, on the west side and approximately 5 miles from the mouth of Vermilion Creek.

Being 5980 feet south and 5780 feet east of Post No. 1 Vermilion Ridge No. 6. The well is known as Vermilion Ridge No. 1

We intend using the following equipment:-

| Type of drilling rig | Rotary | CASING | | Brand | How/Used | Depth | How Set |
|----------------------|------------------|--------|--|-------------------|-------------------|-------------------------|-------------------------|
| Size | Weight | Thread | | XXXXXX | XXXXXX | XXXXXXXXXXXX | XXXXXXXXXXXX |
| 10 3/4" | 40 $\frac{1}{2}$ | 8 Rd. | | Spang | New | 275 | Cement 75sacks |
| 7" | 24 $\frac{1}{2}$ | 8 Rd. | | Spang | New | 600 | Cement 50 sacks |

We expect to encounter the following oil, water and gas horizons and propose taking care of them as follows:- (We will inform you of any changes in this programme.)

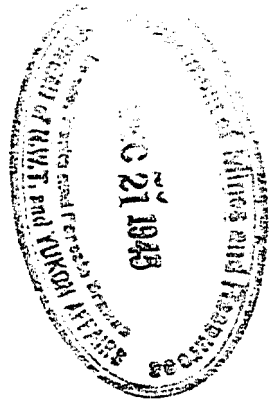
Sulphur Water at 50 to 100 feet
Oil & Gas, Possibly at 600' & 1,000 feet
Probable depth of Well - 1500 feet.

The well is to be drilled by Company or Contractor. If contractor give name.

The officers in charge of the operations will be:

At the well W. Allen of the company
Field Supt. 1

Name of permittee Imperial Oil Ltd. Signature
Approved J. S. Stewart Title
Supervisory Engineer



NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

DAILY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Mackenzie River Basin, N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Warillon Ridge No. 1.

| Day ending 1945 | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|---|-------------------------------|----------|----------|-------|------------------------------|---------------------------------|------------------------------|-------------|-------------|--------------|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity Seconds | Average Weight # /gal. | Depth | Inclination | |
| 8:00 a.m. | | | | | | | | | | |
| April 1 | 4 | - | - | 4 | 5972 | 42 | 1114 | | | Pulled core. |
| " 2 | | | | | 5972 | | | | | Electrolog |
| " 3 | | | | | 5972 | | | | | Cementing |
| REMARKS: The abandoned operation was carried out on April 3rd, 1945, by cementing four cement plugs as follows: | | | | | | | | | | |
| | (1) 3298' to 3350' - 25 sacks | | | | | (3) 508' to 560' - 25 sacks | | | | |
| | (2) 848' to 900' - 25 sacks | | | | | (4) Surface - 25 sacks | | | | |
| One joint (31 feet) of surface was recovered prior to spotting the surface plug, and the well location was identified with a metal marking plate set upright in the surface plug. | | | | | | | | | | |

General Remarks:

Drilling Superintendent H. A. Wilson
Date April 1 to 3, 1945

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum
& Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day Ending | Footage Drilled | | | Total | Depth at end of Day | Drilling Mud | | Slope Tests | | Remarks |
|------------|-----------------|----------|----------|-------|---------------------|---------------------------|-------------------------|-------------|--------------|--|
| | 1st Tour | 2nd Tour | 3rd Tour | | | Average Viscosity seconds | Average Weight #/cu.ft. | Depth | Inclinations | |
| 8.00 A.M. | | | | | | | | | | General repairs. Drilling shale. |
| March 25th | 2 | 20 | 20 | 42 | 5770 | 45 | 86.5 | | | Coring and reaming Formation shale. |
| " 26th | 18 | - | 9 | 27 | 5797 | 45 | 86.5 | | | Coring |
| " 27th | 9 | - | 11 | 20 | 5817 | 43 | 85.5 | | | Hit bridge 6 stands off bottom General repairs. |
| " 28th | 16 | 18 | - | 34 | 5851 | 43 | 86.5 | | | Drilling shale |
| " 29th | 13 | 16 | 17 | 46 | 5897 | 44 | 86.5 | | | Changed oil in motors. Drilling shale. |
| " 30th | 5 | 18 | 18 | 41 | 5938 | 45 | 86.5 | | | " " |
| " 31st | 14 | 3 | 13 | 30 | 5968 | 40 | 86.5 | | | " " |

General Remarks: Cored 5788' to 5806'. Recovery 14/18.
Cored 5952' to 5972'. Recovery 20/20.

Drilling Superintendent C. Westlake
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF LINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

DAILY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum & Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending 8.00 A.M. | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------------------|-----------------|----------|----------|-------|------------------------------|---------------------------------|-------------------------------|-------------|-------------|-------------------------------------|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity seconds | Average Weight #/cu.ft. | Depth | Inclination | |
| March 18 | 62 | 40 | 15 | 117 | 5474 | 44 | 85.5 | | | Drilling salt and shale |
| 19 | - | 36 | 23 | 39 | 5528 | 44 | 86 | | | Drilling shale and limestone |
| 20 | 40 | 14 | 9 | 63 | 5591 | 44 | 86 | | | Reaming Drilling shale and salt. |
| 21 | 8 | 3 | 7 | 18 | 5609 | 42 | 86 | | | Drilling hard shale. |
| 22 | 9 | 4 | 11 | 24 | 5633 | 43 | 85.5 | | | " " " |
| 23 | 11 | 8 | 14 | 33 | 5666 | 43 | 86 | | | " " " |
| 24 | 20 | 21 | 21 | 62 | 5728 | 45 | 86.5 | | | " shale. |

General Remarks: 5474', corrected by pipe measurement, to 5489'.

Drilling Superintendent, *C. W. Mackenzie*
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum & Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope tests | | Remarks |
|------------|-----------------|----------|----------|-------|---------------------|---------------------------|-------------------------|-------------|-------------|--|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity seconds | Average Weight #/cu.ft. | Depth | Inclination | |
| 8.00 A.M. | | | | | | | | | | |
| March 11 | 76 | 47 | 60 | 183 | 4967 | 47 | 87 | | | Drilling shale and salt. |
| 12 | 61 | 29 | - | 90 | 5057 | 49 | 87 | | | Working tight hole. |
| 13 | 5 | 40 | 38 | 83 | 5140 | 44 | 85 | | | Working on mud and Reaming, Drilling shale and salt. |
| 14 | 54 | 45 | 16 | 115 | 5255 | 45 | 86 | | | " " " " |
| 15 | - | - | 20 | 20 | 5275 | - | - | | | General repairs. Coring |
| 16 | - | - | - | - | 5275 | - | - | | | Working on drawworks. Reaming. Drilling shale and salt. |
| 17 | - | 27 | 55 | 82 | 5357 | - | - | | | Waiting for sub. General repairs. |
| | | | | | | | | | | |

General Remarks:

Drilling Superintendent W. W. Schaefer
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
AS required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells, Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending 8.00 A.M. | Footage drilled | | | | Depth at end of day | Drilling Mud | | Slope tests | | Remarks |
|-------------------------|-----------------|----------|----------|-------|------------------------------|---------------------------------|-------------------------------|-------------|-------------|---|
| | 1st tour | 2nd tour | 3rd tour | Total | | Average viscosity seconds | Average Weight #/cu.ft. | Depth | Inclination | |
| March 4 | 15 | 68 | 60 | 143 | 4232 | 45 | 86 | | | Waiting for drill pipe. Drilling salt and shale. |
| 5 | 42 | 61 | 61 | 164 | 4396 | 46 | 86 | | | Drilling salt. |
| 6 | 27 | 27 | 20 cored | 74 | 4470 | 44 | 87 | | | Drilling limestone and shale. |
| 7 | - | 64 | 71 | 135 | 4605 | 44 | 87 | | | " shale and salt |
| 8 | 60 | 37 | - | 97 | 4702 | 45 | 87 | | | " " " " |
| 9 | - | - | - | - | 4702 | - | - | | | Waiting on drill pipe |
| 10 | - | 22 | 60 | 82 | 4784 | 48 | 86 | | | " " " " Drilling limestone and shale |

General Remarks: Mar. 7 Cored 4450 to 4470' - 10' recovery.

Drilling Superintendent.....*W. Mackenzie*
Date.....

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

NOTE: All depths to be reported from
top of rotary table if rotary
used; derrick floor if standard tools
used.

| Day ending 8.00 A.M. | Footage drilled | | | | Depth at end of day | Drilling Mud | | Slope tests | | Remarks |
|-------------------------|-----------------|----------|----------|-------|------------------------------|---------------------------------|-------------------------------|-------------|-------------|--|
| | 1st tour | 2nd tour | 3rd tour | Total | | Average viscosity seconds | Average Weight #/cu.ft. | Depth | Inclination | |
| February 25 | 22 | 23 | 72 | 117 | 3091 | 46 | 79.5 | | | |
| 26 | 80 | 83 | 100 | 263 | 3354 | 52 | 81 | | | Drilling limestone |
| 27 | 63 | - | 60 | 123 | 3477 | 48 | 83.5 | | | Drilling limestone and shale Stringing 8 lines. |
| 28 | - | - | 100 | 100 | 3577 | 45 | 83.5 | | | Drilling shale and salt General repairs |
| March 1 | 57 | 70 | 65 | 192 | 3769 | 45 | 84 | | | Drilling salt. |
| 2 | 52 | 54 | 108 | 214 | 3983 | 45 | 86 | | | Drilling shale and salt, |
| 3 | 68 | 38 | - | 106 | 4089 | 44 | 86 | | | " " " |
| | | | | | | | | | | Drilling salt and waiting on drill pipe. |

General Remarks:

Drilling Superintendent W. Decker
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------|-----------------|----------|----------|-------|---------------------|-------------------|----------------|-------------|-------------|---------------------------------------|
| | 1st tour | 2nd tour | 3rd tour | Total | | Average viscosity | Average Weight | Depth | Inclination | |
| 8.00 A.M. | | | | | | seconds | #/cu.ft. | | | |
| February 18 | 7 | 7 | 7 | 21 | 2725 | 47 | 79 | | | Drilling limestone |
| 19 | 12 | 11 | 7 | 30 | 2755 | 45 | 79 | | | " " |
| 20 | 9 | 12 | 9 | 30 | 2785 | 47 | 79 | | | " " |
| 21 | 7 | 9 | 14 | 30 | 2815 | 45 | 78.5 | | | General repairs Drilling limestone |
| 22 | 6 | 3 | 11 | 20 | 2835 | 43 | 78.5 | | | Drilling limestone and shale |
| 23 | 16 | 13 | 14 | 43 | 2878 | 43 | 78.5 | | | " " " " |
| 24 | 27 | 29 | 40 | 96 | 2974 | 42 | 78.5 | | | " " " " |

General Remarks: Cored 2801' to 2821'
Reamed.

Drilling Superintendent. *W. C. Mackenzie*

Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF LINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N. W. T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------|-----------------|----------|----------|-------|---------------------|-------------------|----------------|-------------|-------------|---------------------------------------|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity | Average Weight | Depth | Inclination | |
| | | | | | | seconds | #/cu.ft. | | | |
| 8.00 A.M. | | | | | | | | | | |
| February 11 | 12 | 12 | 8 | 32 | 2523 | 15 | 78 | | | Drilling limestone |
| 12 | 11 | 13 | 9 | 33 | 2556 | 16 | 78 | | | " " |
| 13 | 12 | 10 | 17 | 39 | 2595 | 19 | 78.5 | | | " " |
| 14 | 11 | 16 | 11 | 38 | 2633 | 16 | 79 | | | " " |
| 15 | 7 | 10 | 10 | 27 | 2660 | 15 | 78.5 | | | " " |
| 16 | 8 | - | 10 | 18 | 2678 | 16 | 78.5 | | | Coring and reaming. |
| 17 | 7 | 16 | 3 | 26 | 2704 | - | - | | | Repairing drive chain and water pump. |

General Remarks: Cored 2650' to 2668'.

Drilling Superintendent. *U. Weckung*
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|------------|-----------------|----------|----------|-------|---------------------|-------------------|----------------|-------------|-------------|---|
| | 1st tour | 2nd tour | 3rd tour | Total | | Average viscosity | Average weight | Depth | Inclination | |
| 8.00 A.M. | | | | | | seconds | #/cu.ft. | | | |
| February 4 | 13 | 11 | 14 | 38 | 2289 | 40 | 76.5 | | | Drilling limestone |
| " 5 | 10 | 14 | 18 | 42 | 2331 | 40 | 76.5 | | | " " |
| " 6 | 3 | 21 | 18 | 42 | 2373 | 43 | 78 | | | Changing drill collar. Drilling limestone. |
| " 7 | 3 | 16 | 2 | 21 | 2394 | 43 | 77 | | | Coring and reaming. |
| " 8 | 7 | 9 | 16 | 32 | 2426 | 44 | 77 | | | Drilling limestone |
| " 9 | 13 | 5 | 17 | 35 | 2461 | 44 | 78 | | | " " |
| " 10 | 10 | 8 | 12 | 30 | 2491 | 47 | 78 | | | " " |

General Remarks: February 7. Cored 2372' - 2394'.

Drilling Superintendent. *[Signature]*
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

FEB 12 1945

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending 8.00 A.M. | Footage drilled | | | | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------------------|-----------------|----------|----------|-------|------------------------------|--------------------------------|-------------------------------|-------------|-------------|---------------------------------|
| | 1st tour | 2nd tour | 3rd tour | Total | | Average viscosity secnds | Average Weight #/cu.ft. | Depth | Inclination | |
| January 28th | - | - | - | - | 2063 | 36 | 78.5 | | | Reaming wall cake. |
| " 29th | - | - | - | 6 | 2069 | 40 | - | | | Changing mud Mixing aquagel |
| " 30th | 20 | 13 | 6 | 39 | 2108 | 40 | 75 | | | Drilling dolomite limestone. |
| " 31st | 13 | - | 3 | 16 | 2124 | 40 | 74.5 | | | Reaming and coring. |
| February 1st | 19 | 17 | 10 | 46 | 2170 | 41 | 75.5 | | | Drilling limestone |
| " 2nd | 21 | 11 | 6 | 38 | 2208 | 41 | 75.5 | | | Ran electric log. |
| " 3rd | 20 | 13 | 10 | 43 | 2251 | 39 | 75 | | | Drilling dolomite limestone |

General Remarks:

Drilling Superintendent. *J.M. Dutton*
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

28983

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells, N.W.T. - Mackenzie River Basin
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|--------------|-----------------|----------|----------|-------|---------------------|-------------------|----------------|-------------|-------------|--|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity | Average Weight | Depth | Inclination | |
| 6.00 A.M. | | | | | | seconds | #/cu.ft. | | | |
| January 21st | 14 | 20 | 15 | 49 | 1927 | 42 | 81 | | | Drilling limestone |
| " 22nd | 5 | 15 | 9 | 29 | 1956 | 40 | 81 | | | " " |
| " 23rd | 17 | 18 | 14 | 49 | 2005 | 43 | 82 | | | " " |
| " 24th | 17 | 20 | 19 | 56 | 2061 | 43 | 82.5 | | | " " |
| " 25th | 2 | - | - | 2 | 2063 | 50 | 84 | | | Damaged crown |
| " 26th | - | - | - | - | 2063 | - | - | | | Changing crown |
| " 27th | - | - | - | - | 2063 | - | - | | | Repairing light plants and and general repairs around rig. |

General Remarks:

Drilling Superintendent... *J.M. Fulton* ...
Date

28983

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum & Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending 8.00 A.M. | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------------------|-----------------|----------|----------|-------|---------------------|---------------------------|-------------------------|-------------|-------------|--------------------------------|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity seconds | Average weight #/cu.ft. | Depth | Inclination | |
| January 14th | 17 | 23 | 9 | 49 | 1660 | 46 | 77 | | | Drilling limestone |
| " 15th | 2 | 20 | 18 | 40 | 1700 | 42 | 76 | | | " " |
| " 16th | 20 | 14 | 21 | 55 | 1755 | 48 | 78 | | | Drilling hard cherty limestone |
| " 17th | 10 | 14 | 16 | 40 | 1795 | 50 | 78 | | | Drilling limestone |
| " 18th | 18 | 7 | 14 | 39 | 1834 | 48 | 78 | | | " " |
| " 19th | 5 | - | 3 | 8 | 1842 | 52 | 81 | | | Coring and reaming |
| " 20th | 15 | 11 | 10 | 36 | 1878 | 47 | 81 | | | Drilling limestone |

General Remarks:

Drilling Superintendent *J.M. Fulton*
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells, Mackenzie River Basin, NWT
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|------------|-----------------|----------|----------|-------|---------------------|-------------------|----------------|-------------|-------------|--------------------|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity | Average weight | Depth | Inclination | |
| 8:00 A.M. | | | | | | secs. | #/cu.ft. | | | |
| January 7 | 45 | 28 | 17 | 90 | 1305 | 52 | 72.5 | | | Drilling limestone |
| January 8 | - - - | 9 | 19 | 28 | 1333 | | | | | |
| January 9 | - - - | - - - | 17 | 17 | 1350 | | | | | Circulating |
| January 10 | 12 | 13 | 22 | 47 | 1397 | 39 | 74 | | | Drilling Limestone |
| January 11 | 28 | 24 | 24 | 76 | 1473 | | | | | Ditto |
| January 12 | 30 | 29 | 24 | 83 | 1556 | 45 | 75 | | | |
| January 13 | 24 | 16 | 15 | 55 | 1611 | 48 | 77 | | | " |

General Remarks: January 9th.

Cored 1333 - 1353'

Drilling Superintendent..

Date ..

J. M. Fulton
Jan 14, 1945

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum & Natural Gas Regulations.

Field Norman Wells, Mackenzie River Basin, NWT
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending 8.00 a.m. | Footage drilled | | | | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------------------|-----------------|----------|----------|-------|------------------------------|-----------------------------|-------------------------------|-------------|-------------|---|
| | 1st tour | 2nd tour | 3rd tour | Total | | Average Specific Gravity | Average Weight #/cu.ft. | Depth | Inclination | |
| December 31 | - - - | - - - | - - - | - - - | 1022 | | | | | Testing |
| January 1 | - - - | - - - | - - - | - - - | 1022 | | | | | Reaming |
| January 2 | 20 | 15 | 15 | 50 | 1072 | 65 | | | | Regained circulation Coring (tion) |
| January 3 | - - - | - - - | - - - | - - - | 1072 | | | | | Testing |
| January 4 | - - - | - - - | - - - | - - - | 1072 | | | | | Reaming. Mixing aquagel. |
| January 5 | - - - | - - - | - - - | 47 | 1119 | | | | | Conditioning mud. Running electric log. |
| January 6 | 35 | 17 | 44 | 96 | 1215 | | | | | |

General Remarks: Formation tests taken at 995 - 1022'
1032 - 1072'

Drilling Superintendent *J. M. Fulton*
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Pools)
As required by Section 61 of the Petroleum & Natural Gas Regulations.

Field Norman Wells, Mackenzie River Basin, NWT
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------|-----------------|----------|----------|-------|---------------------|---------------------------|--------------------------|-------------|-------------|---------------------|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity Seconds | Average weight #/cu. ft. | Depth | Inclination | |
| 8.00 A.M. | | | | | | | | | | |
| December 24 | 13 | - - - | - - - | 13 | 945 | 49 | 69 | | | Ran formation test. |
| December 25 | - - - | - - - | - - - | | 945 | | | | | Conditioning mud. |
| December 26 | - - - | - - - | - - - | - - - | 945 | | | | | Reaming |
| December 27 | - - - | 4 | 35 | 39 | 984 | | | | | Drilling limestone |
| December 28 | 11 | 12 | 5 | 28 | 1012 | 70 | 69 | | | Lost circulation. |
| December 29 | - - - | - - - | 10 | 10 | 1022 | | | | | Cored 10' |
| December 30 | - - - | - - - | - - - | - - - | 1022 | - - - | | | | Lost circulation. |

General Remarks:

Drilling Superintendent. *J. M. Fulton*
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WELLS SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells, Mackenzie River Basin, NWT
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope Tests | | Remarks |
|-------------|-----------------|----------|----------|-------|---------------------|-------------------|----------------|-------------|-------------|----------------------------|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity | Average weight | Depth | Inclination | |
| 8:00 A.M. | | | | | | secs. | #/cu.ft. | | | |
| December 17 | 46 | 37 | 31 | 114 | 679 | 60 | 74 | | | Drilling limestone |
| December 18 | 45 | 40 | 31 | 116 | 795 | 54 | 76 | | | Ditto |
| December 19 | 38 | 14 | 12 | 64 | 859 | | | | | Bear Rock Dolomite contact |
| December 20 | 9 | 11 | 9 | 29 | 888 | 43 | 77 | | | Drilling limestone (831') |
| December 21 | 7 | - - - | - - - | 7 | 895 | | | | | Coring. Lost circulation. |
| December 22 | - - - | - - - | - - - | - - - | 895 | - - - | | | | Regaining circulation |
| December 23 | 8 | 12 | 17 | 37 | 932 | 46 | 70 | | | Coring |

General Remarks: Tested formation 855' - 895'.

Cored 895 - 915'
915 - 925'

Drilling Superintendent J.M. Fulton
Date

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
AS required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells - N.W.T. - Mackenzie River Basin
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending 8.00 A.M. | Footage drilled | | | Total | Depth at end of day | Drilling Mud | | Slope tests | | Remarks |
|-------------------------|-----------------|----------|----------|-------|------------------------------|----------------------|---------------------------------|-------------|-------------|--|
| | 1st tour | 2nd tour | 3rd tour | | | Average viscosity | Average Weight # / cu.ft. | Depth | Inclination | |
| December 10th | - | - | - | - | 286 | - | - | | | Standing cemented. |
| " 11th | - | - | 14 | 14 | 300 | 43 | 65 | | | Hit plug at 267' |
| " 12th | 22 | 30 | 30 | 82 | 382 | 42 | 68 | 345' | 1° | Drilling sand & shale |
| " 13th | 23 | 38 | 35 | 96 | 478 | 48 | 71 | 440' | 1° | " hard shale, |
| " 14th | 2 | 5 | 9 | 16 | 494 | 38 | 69 | | | Limestone contact 480' (Beavertail) |
| " 15th | 5 | 7 | 5 | 17 | 511 | 35 | 69 | | | Drilling limestone |
| " 16th | 3 | 22 | 29 | 54 | 565 | 46 | 69.5 | | | " " |

General Remarks: Cored from 480' to 494'
494' to 506'
Lost circulation at 511'.

Drilling Superintendent.....*J.M. Fulton*.....
Date.....

NOTE: All depths to be reported from top of rotary table if rotary used; derrick floor if standard tools used.

DEPARTMENT OF MINES & RESOURCES
NORTHWEST TERRITORIES BRANCH

WEEKLY SUMMARY OF DRILLING (Rotary Tools)
As required by Section 61 of the Petroleum &
Natural Gas Regulations.

Field Norman Wells - Mackenzie River Basin - N.W.T.
Company or Contractor Imperial Oil Limited
Well designation Vermilion Ridge No. 1

| Day ending 1944 8.00 A.M. | Footage drilled | | | | Depth at end of day | Drilling Mud | | Slope tests | | Remarks |
|---------------------------------|-----------------|----------|----------|-------|------------------------------|----------------------|-------------------------------|-------------|-------------|--------------------------|
| | 1st tour | 2nd tour | 3rd tour | Total | | Average viscosity | Average Weight #/cu.ft. | Depth | Inclination | |
| December 4th | 35 | 9 | 31 | 75 | 75 | 40 | 66 | | | Spudded in. |
| " 5th | 6 | 12 | 35 | 53 | 128 | 45 | 67 | | | Drilling sand and shale. |
| " 6th | 14 | 7 | 48 | 69 | 197 | 40 | 70.5 | | | " " " |
| " 7th | 40 | 12 | 37 | 89 | 286 | 36 | 68 | | | " " " |
| " 8th | - | - | - | - | 286 | 42 | 70 | | | Cemented. |
| " 9th | - | - | - | - | 286 | - | - | | | Standing cemented. |

General Remarks: Cemented 283' of 10 $\frac{3}{4}$ " casing with 80 sacks cement.
Plug down at 6.30 p.m.

Drilling Superintendent... *J.M. Fulton*
Date.....