

Depth Limitations

Saying What You Mean:

Words, Phrases, and Tools for Ownership that Changes with Depth

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McGinnis Lochridge & Kilgore L.L.P.

March 21, 2003

- Ownership that varies with depth can be found in virtually every kind of mineral conveyance or agreement –
 - deeds
 - leases
 - farmouts
 - assignments
 - pooling declarations
 - unit agreements
 - settlement agreements

No matter the type of document the words and phrases will be essentially similar.

Overview

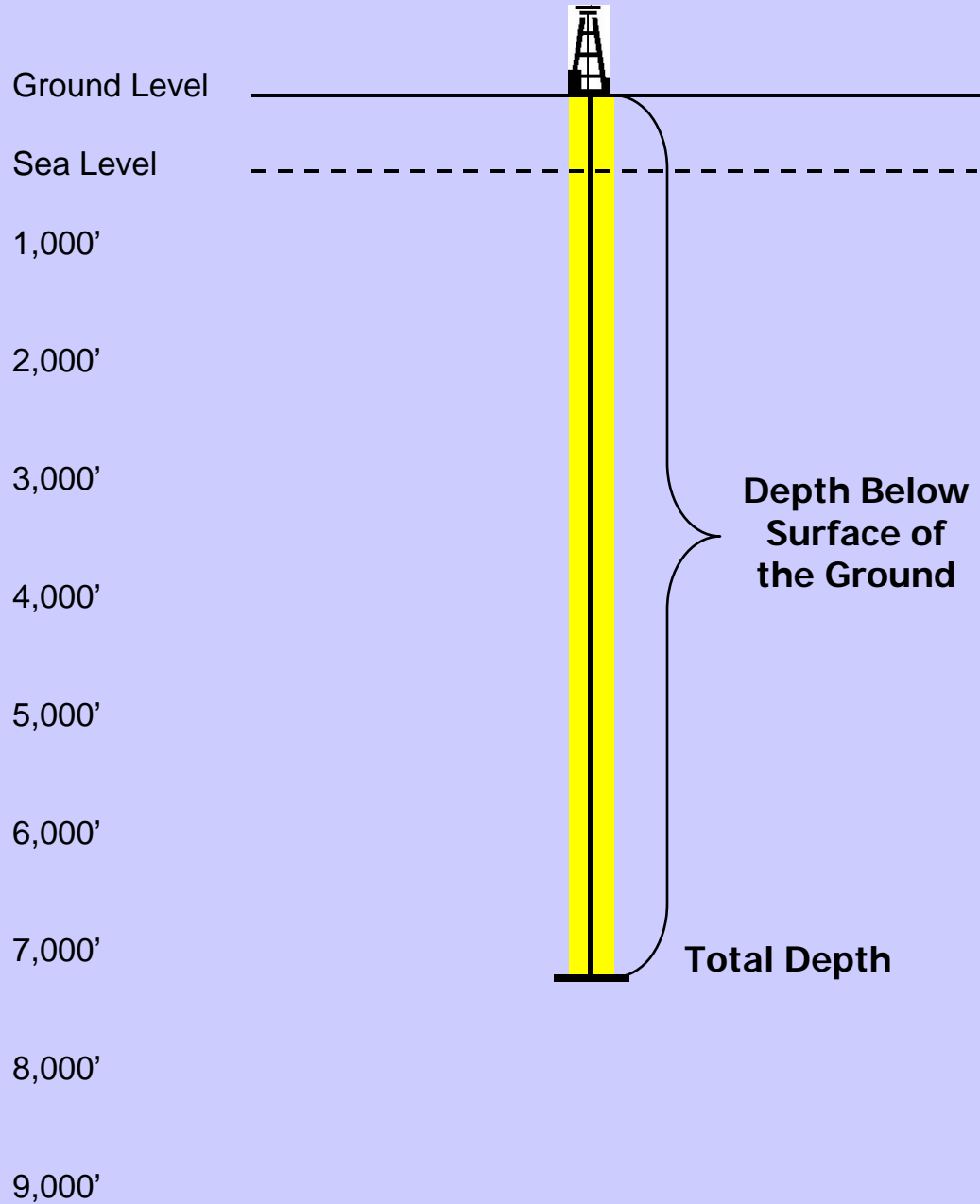
- Depth Below the Surface
- Technical Terms
 - Regional Geology
 - Regulatory Fields
 - Well Logs
- Producing Wells

Overview

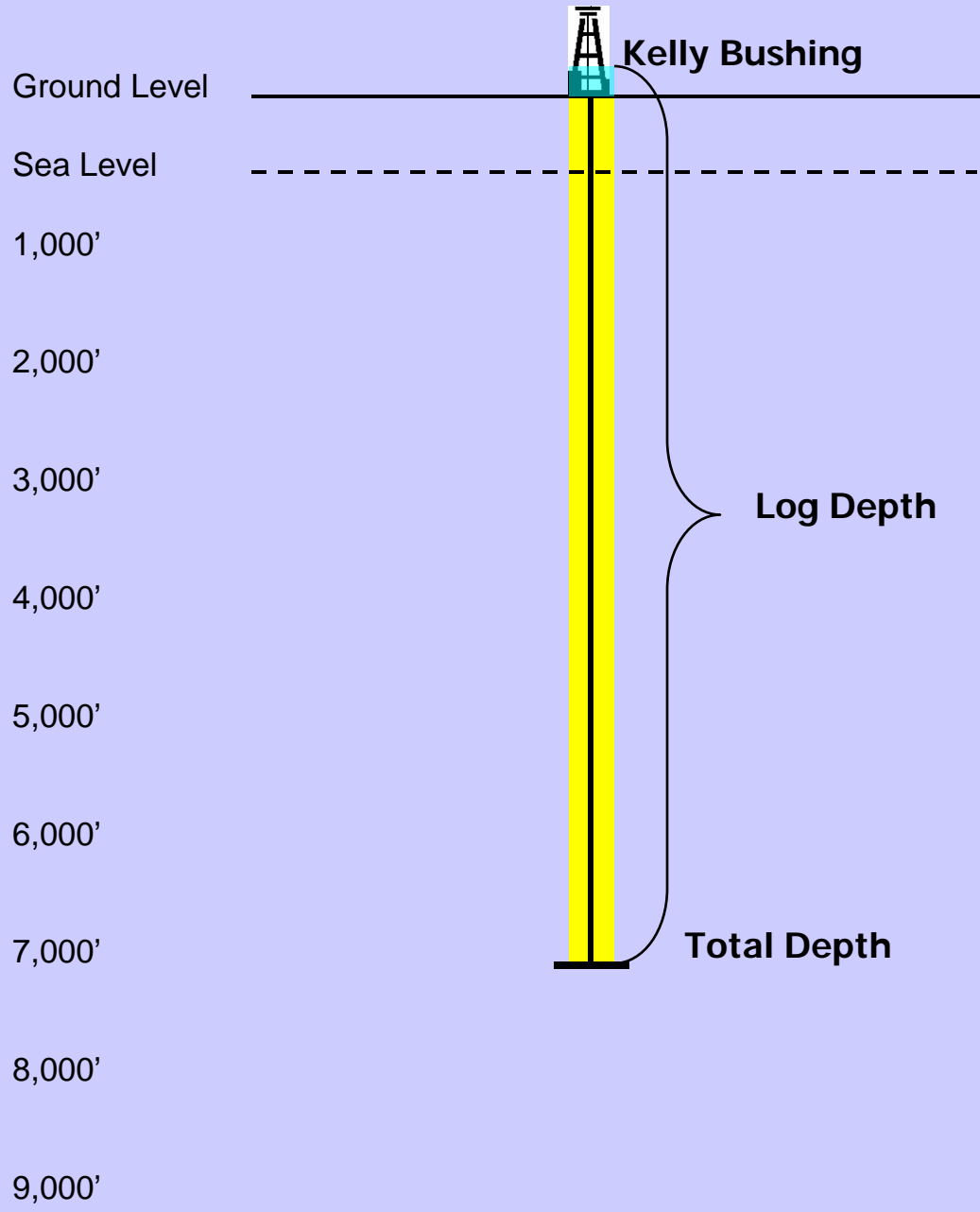
- Depth Below the Surface

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DEPTH BELOW SURFACE OF THE GROUND



LOG DEPTH



WSC-1044-B

SCHLUMBERGER

SONIC LOG - GAMMA RAY
WITH CALIFER

SCHLUMBERGER WELL SURVEYING CORPORATION
Houston Texas

CAT
E MOORE # 6
NY MOBIL OIL

COMPANY SOCONY MOBIL OIL COMPANY

WELL WAYNE MOORE # 6

FIELD WILDCAT

Well Log

Permanent Datum: GL, Elev. 2592

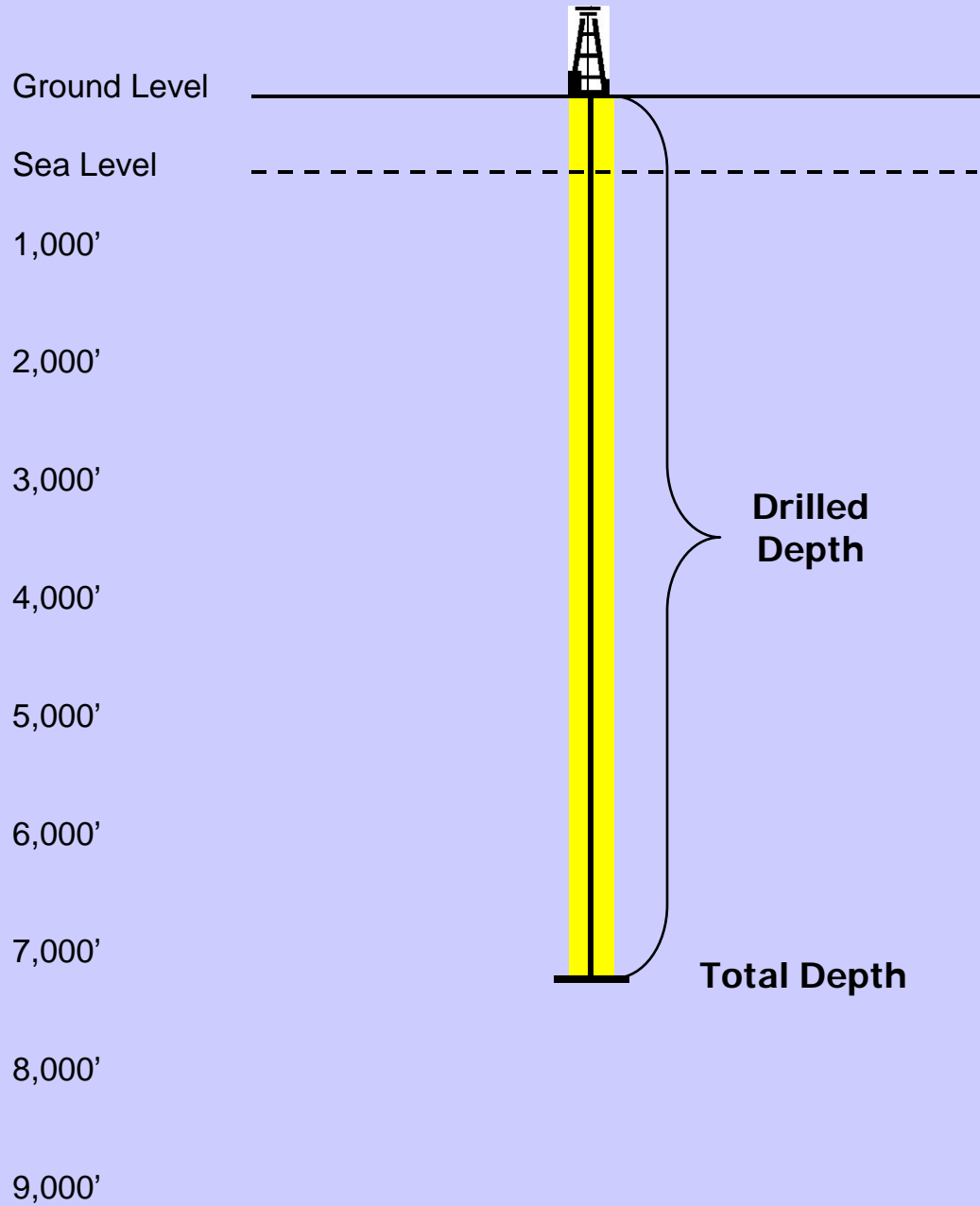
Log Measured From KB, 21 Ft. Above Perm. Datum

Drilling Measured From KB

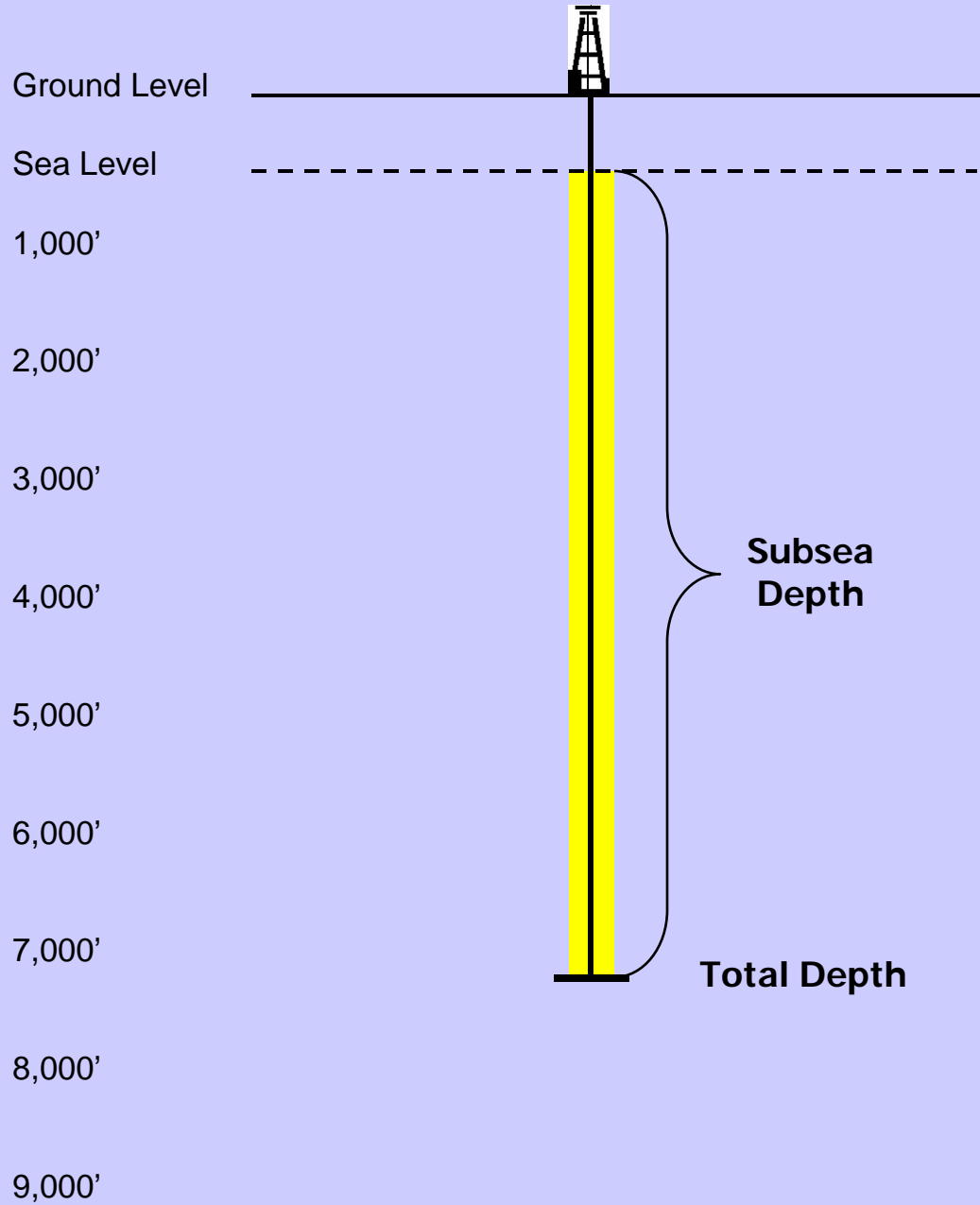
Run No.	1	2	3	4	5					
Depth—Driller	9502	10390	16,099	16,986	18,001					
Depth—Logger	9498	10387	16,100	16,945	17,958					
Btm. Log Interval	9490	10380	16,093	16,937	17,950					
Top Log Interval	100	9300	10,380	16,093	16,937					
Casing—Driller	20" @ 1970	13 3/8 @ 9502	9 5/8 @ 10392	9 5/8 @ 10392	9 5/8 @ 10392					
Casing—Logger	-	9498	-	-	-					
Bit Size	17 1/2"	12"	8 1/2"	8 1/2"	8 1/2"					
Type Fluid in Hole	BRINE-SALT GEL-STARCH	FRESH MUD	FRESH MUD	CHEM GEL	BENOX EMUL.					
Dens.	10.2	38	13.8	35	11.3	155	11.4	126	11.3	172
Visc.	-	6 ml	12.4 ml	10.5	38 ml	11.0	3.9 ml	10.5	3.2 ml	
pH	-									
Fluid Loss	-									
Source of Sample	CIRCULATED	CIR. SAMPLE	CIR. SAMPLE	CIR. SAMPLE	CIR. SAMPLE					
R _{in} @ Meas. Temp.	.066 @ 85 °F	.44 @ 78 °F	1.14 @ 85 °F	.94 @ 99 °F	1.26 @ 90 °F					
R _{out} @ Meas. Temp.	.049 @ 89 °F	.22 @ 85 °F	.61 @ 88 °F	.53 @ 97 °F	.74 @ 92 °F					
R _{rec} @ Meas. Temp.	- @ - °F	.82 @ 85 °F	1.42 @ 88 °F	1.36 @ 97 °F	1.62 @ 92 °F					
Source: R _{in} R _{rec}	M -	M M	M M	M M	M M					
R _{in} @ BHT	.041 @ 141 °F	.24 @ 144 °F	.48 @ 206 °F	.45 @ 203 °F	.54 @ 215 °F					
Time Since Circ.	8 HRS.	5 1/2 HRS.	7 1/2 HOURS	6 HOURS	12 HOURS					
Max. Rec. Temp.	141 °F	144 °F	206 °F	203 °F	215 °F					
Equip. Location	2527 MCC	2525 MCC	2525 MCC	2527 MCC	2525 MCC					
Recorded By	OWEN	DAVIS	DAVIS	OWEN	HAMPTON					
Witnessed By	BLUNT	BEARCE	BEARCE	GREENLEE	THOMAS					

FOLD HERE

DRILLED DEPTH



SUBSEA DEPTH



Example 1
Depth Below Surface

This Lease is limited in depth from the surface of the ground to 5,000 feet beneath the surface.

Example 2
Depth Below Surface

This Lease is limited in depth from the surface of the ground down to and including, but not below, 5,000 feet beneath the surface.

Example 3
Depth Below Surface

This Lease is limited in depth from the surface of the ground down to and including, but not below, 5,000 feet beneath the surface. Lessor expressly excepts from this Lease all depths greater than 5,000 feet beneath the surface of the ground.

Example 4
Subsurface Depth Interval

This Lease covers those subsurface depths in the interval from 5,000 feet to 10,000 feet beneath the surface of the ground.

Example 5 *Subsurface Depth Interval*

This Lease covers only those subsurface depths in the interval from 5,000 feet to 10,000 feet beneath the surface of the ground. This Lease does not cover any depths from the surface of the ground to 5,000 feet, or below 10,000 feet from the surface of the ground, which are expressly excepted from this Lease and reserved by Lessor.

Overview

- Depth Below the Surface

- Technical Terms

- Regional Geology
- Regulatory Fields
- Well Logs

- Producing Wells

Geological Terminology

All definitions are taken from *The Petroleum Dictionary*, David F. Tver and Richard W. Berry, Van Nostrand Reinhold Company, 1980

Lithology:

- Study of the physical character of a rock, usually by macroscopic techniques; included are study and description of mineral composition structure, texture, fabric, etc.

Formation:

- A lithologically distinctive product of essentially continuous sedimentation selected from a local succession of strata as a convenient unit for mapping, description and reference. Each formation is given a name based on the person who studied the formation, the geographic locality of formation outcrop or on the fossils found in the formation.

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

8,000'

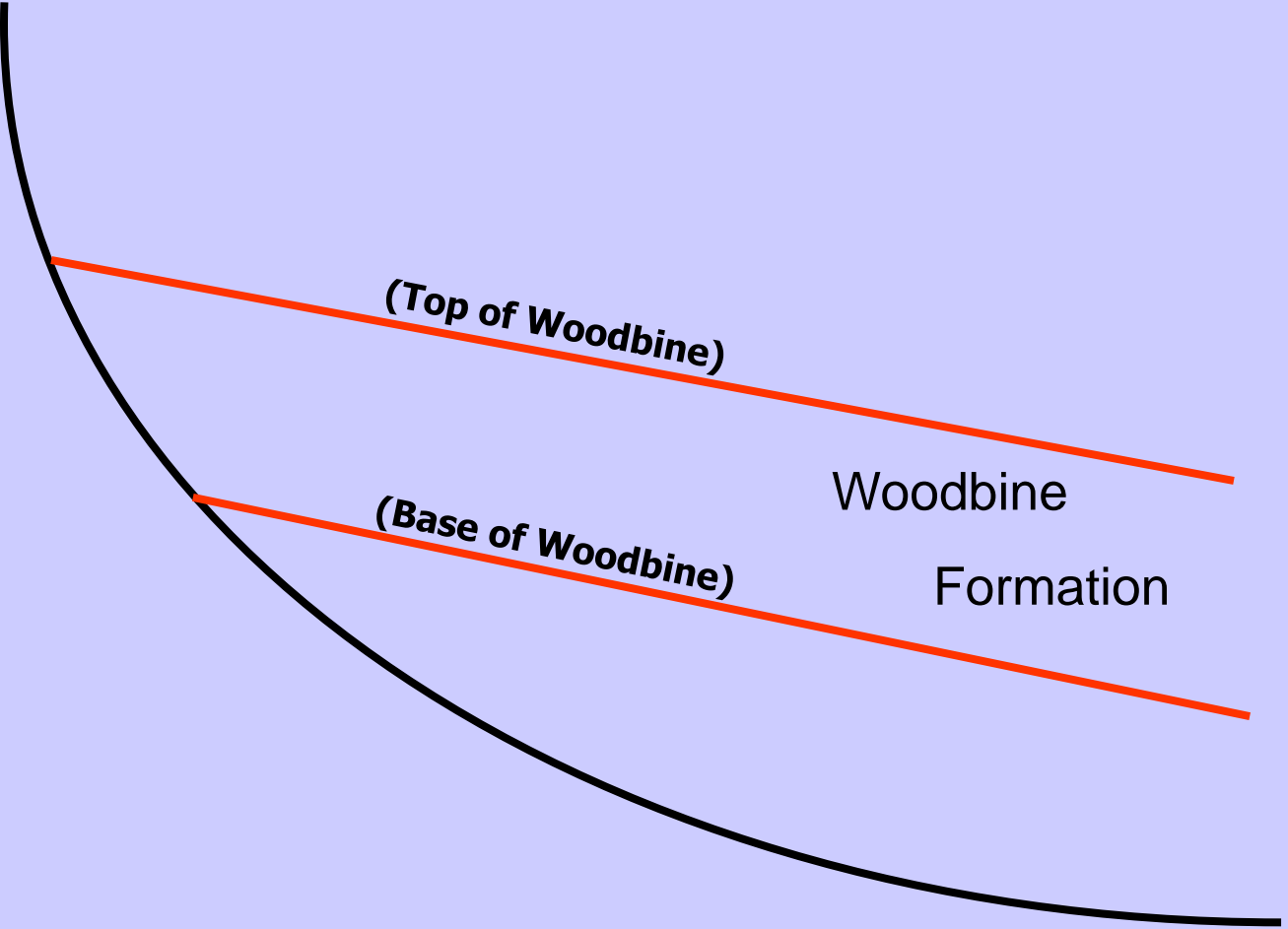
9,000'



(Top of Woodbine)

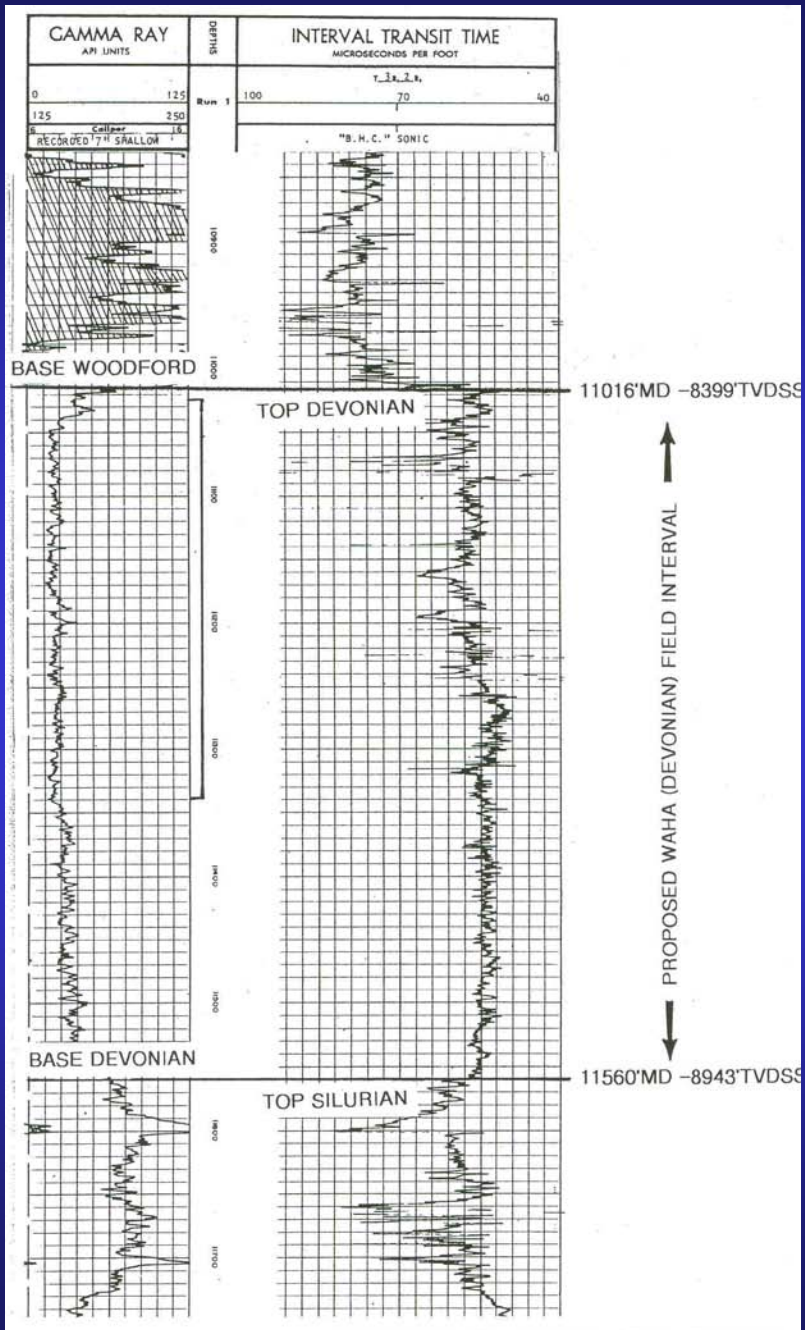
(Base of Woodbine)

Woodbine
Formation



Stratum:

- A single tabular layer of sedimentary material exhibiting homogeneous or gradational lithology. It is separated from adjacent or cross-strata by surfaces of erosion, non-deposition, or abrupt changes in character; synonymous with bed or lamination, frequently used in the plural form, strata.



Type Log

Stratigraphy:

- Systematic treatment of composition, sequence, correlation and formation of stratified rock in the earth's crust.

Zone:

- A subdivision of stratified rock based primarily on fossil content; may be named after the fossil or fossils it contains. No fixed thickness or lithology is implied by the term "zone". (Applied to reservoirs to describe an interval which has one or more distinguishing characteristics, as lithology, porosity, saturation, etc.)

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

8,000'

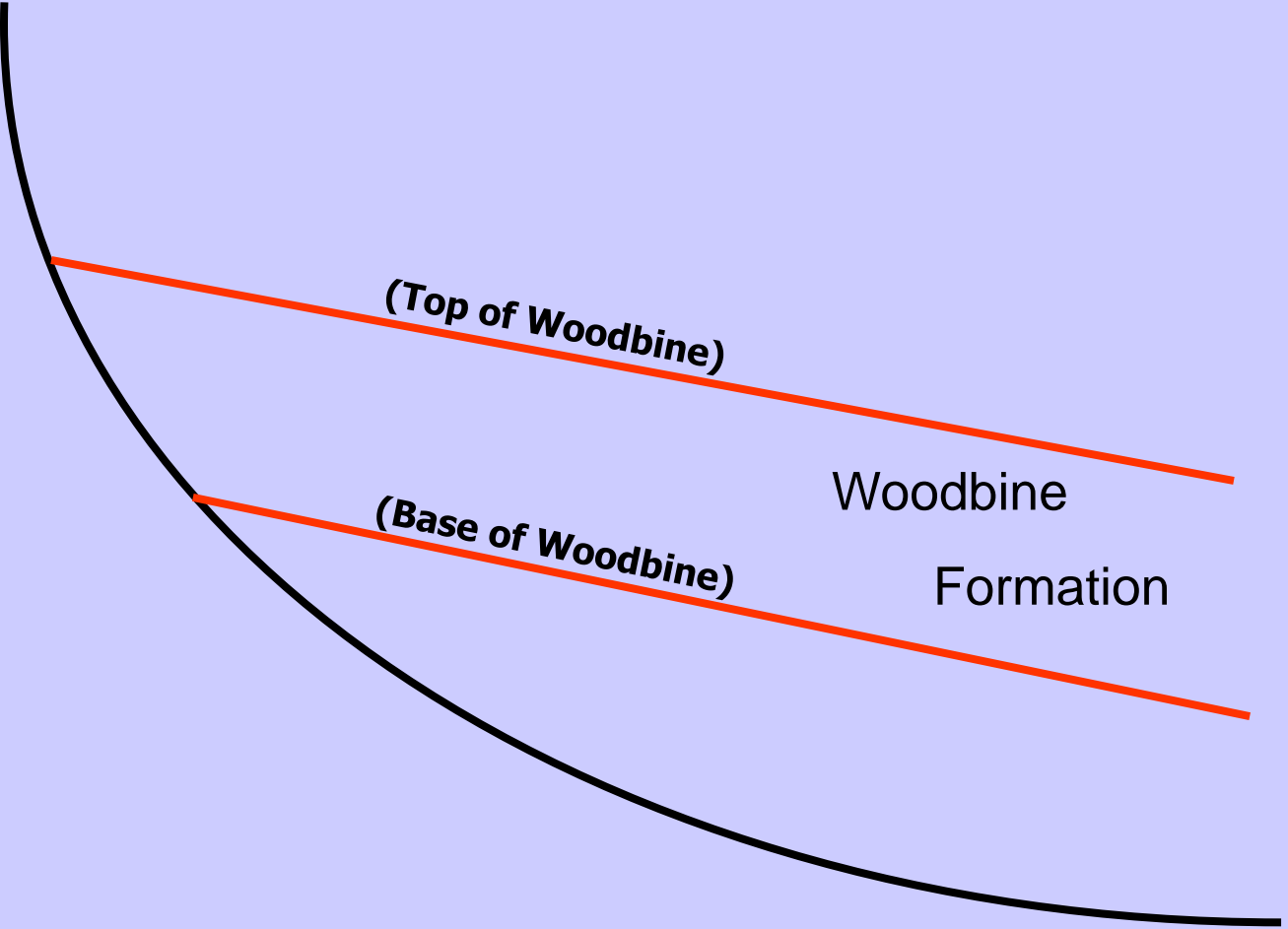
9,000'



(Top of Woodbine)

(Base of Woodbine)

Woodbine
Formation



Interval:

- Distance measured perpendicular to the bedding, between the corresponding parts of two strata in a sedimentary formation; also called the stratigraphic interval.

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

8,000'

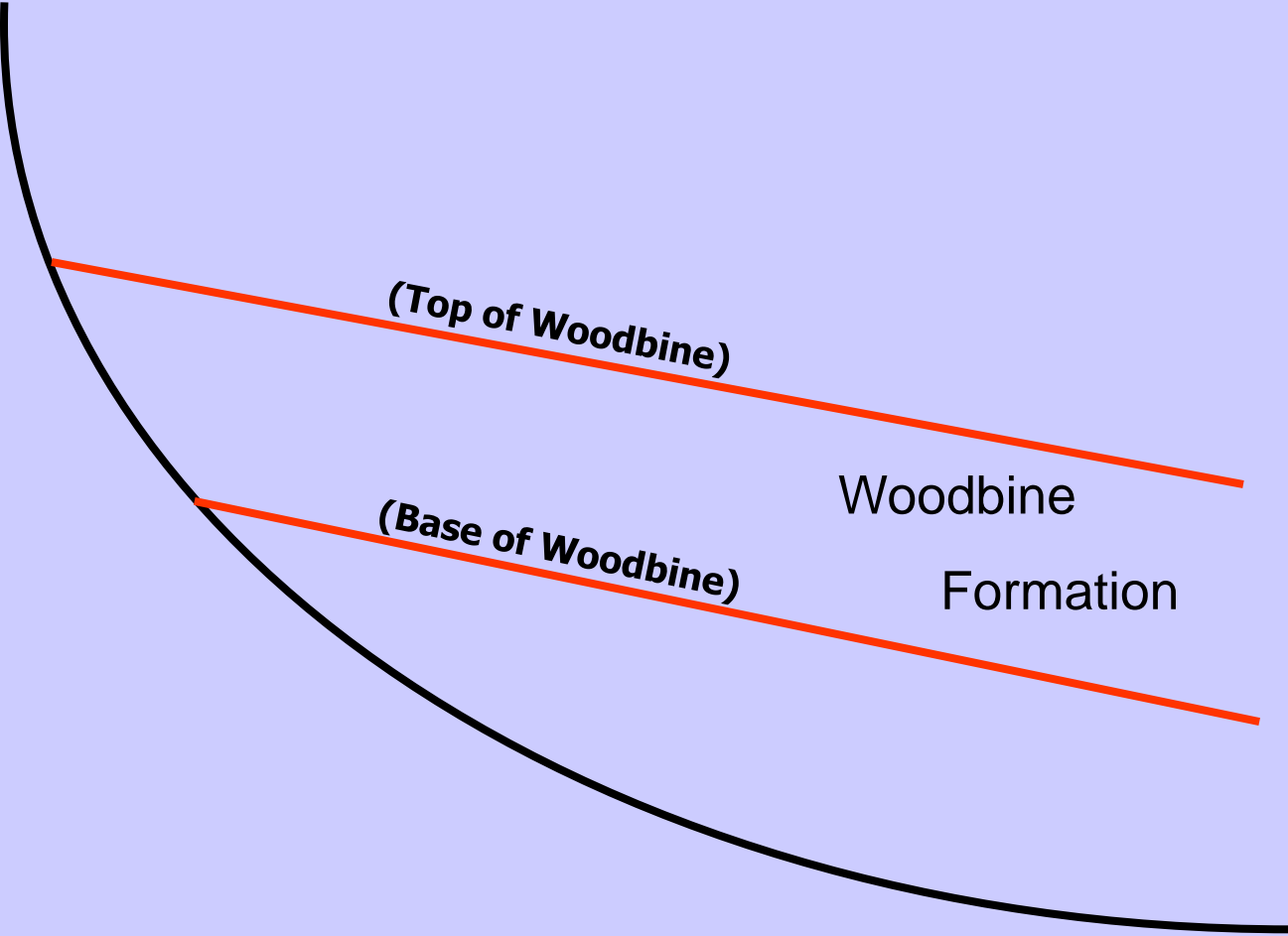
9,000'



(Top of Woodbine)

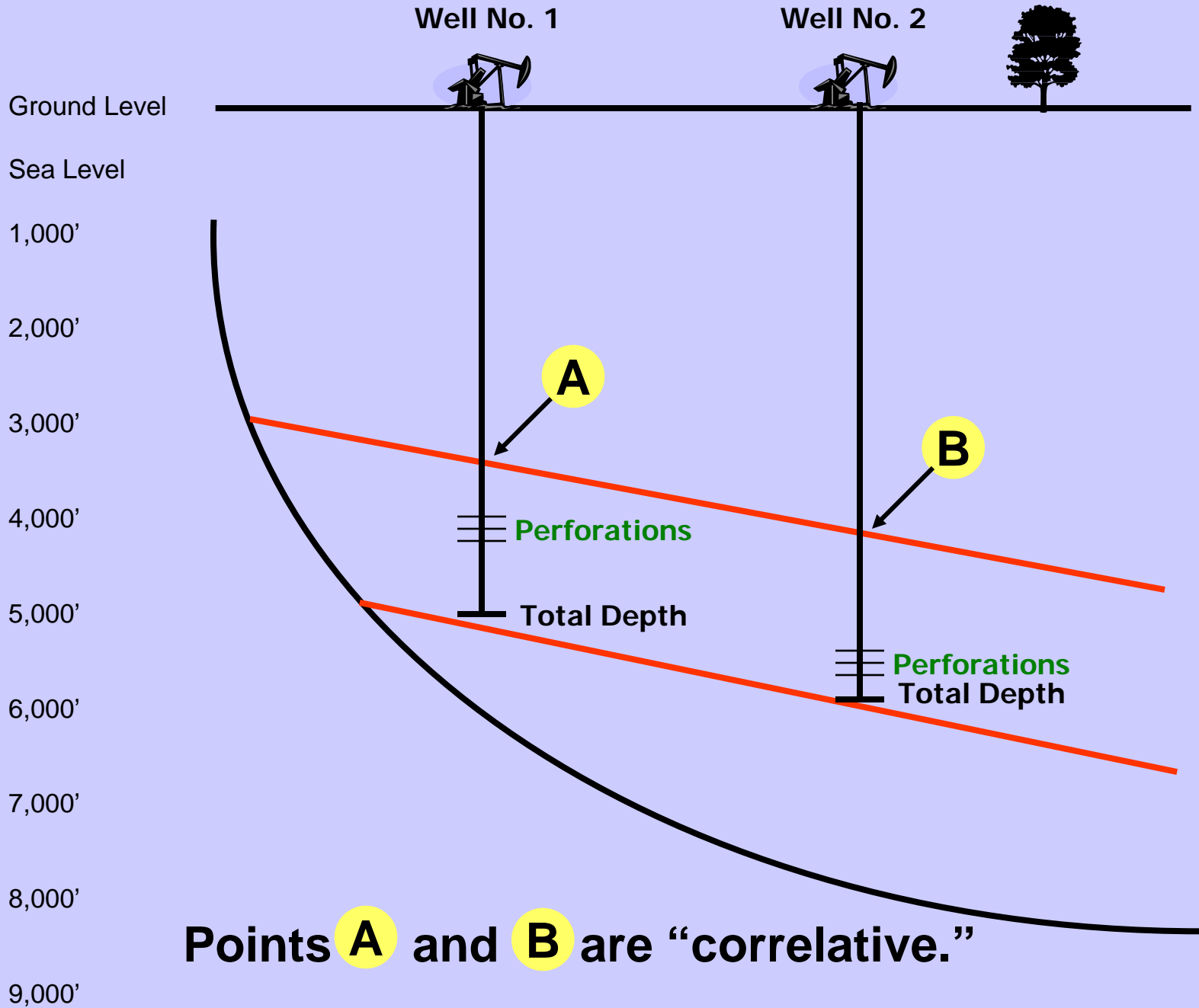
(Base of Woodbine)

Woodbine
Formation



Correlation:

- Establishment of the equivalence in geologic age and stratigraphic position of two or more sedimentary units in separate areas; criteria include fossil assemblages, geochemical constituents, mineralogic composition, rock structure and texture, and direct physical connection.



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- When referencing a formation:
 - Select a formation name in common usage.
 - Avoid company in-house or colloquial nomenclature.
 - If the formation name is not commonly understood, a specific well log reference might be better.
 - Refer to the “top” or “base” of the formation.
 - The top is the shallowest part of the formation.
 - The base is the deepest part of the formation.
 - Avoid other common geological terms that tend to add confusion – for example, structure, sand, horizon.

Example 8
Regional Formation

Lessors reserve unto themselves all oil, gas and other minerals lying below the base of the Travis Peak Formation.

Example 9
Regional Formation and Depth

This Lease is limited to those depths from the surface of the ground to the base of the Frio formation, but in no event any depth greater than 6,000 feet from the surface of the ground. Lessor excepts from this Lease all depths below the Frio formation or below 6,000 feet, whichever is the first to occur.

Example 10
*Pooling – Regional
Geological Formation*

The Parties hereby pool and unitize said oil, gas and mineral leases insofar, and only insofar, as said leases cover production from all zones and formations from the surface of the ground to the base of the Frio formation.

Example 11
Pooling Subsurface Interval
Regional Geologic Formation

The Parties hereby pool and unitize said oil, gas and mineral leases insofar, and only insofar, as said oil, gas and mineral leases cover production from all zones and formations lying between the base of the Woodbine formation and the base of the Travis Peak formation.

Example 12

Pooling Subsurface Interval

Undefined Geological Formation and Depth

This Pooling Agreement applies only to oil or gas that is produced from the lands comprising Tract 1 and Tract 2 from any formation, sand or horizon lying between the depths of 3,000 and 3,500 feet. This Pooling Agreement does not affect any other depths underlying Tract 1 and Tract 2.

Overview

- Depth Below the Surface
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**NEW FIELD DESIGNATION
AND/OR DISCOVERY
ALLOWABLE APPLICATION**

FORM P-7
Rev. 2/89

READ INSTRUCTIONS ON BACK

1. Operator Name, exactly as shown on P-5 Organization Report	2. RRC District No.
3. Address, including city, state, and zip code	4. County
	5. API No.

11. Distance and direction from subject well to nearest geographic feature (town or other feature)

13. Top of reservoir

feet

14. Bottom of reservoir

feet

15. Perforations

from

to

from

to

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

° API Gravity

Csghd Gas Gravity

GOR

Date _____ Phone (____) _____

FOR RRC — NEW FIELD USE ONLY

<input type="checkbox"/> Approved	Field Name _____	Examiner Name _____
<input type="checkbox"/> Denied	Type of Separation _____	Date _____
<input type="checkbox"/> Hearing Set		

L. WILLIAMS, CHAIRMAN
S. R. MATTHEWS, COMMISSIONER



RICHARD A. VAI
DIRECTOR, OIL AND GAS DIVISION
DEBBIE LAH
ASSISTANT DIRECTOR--PERMITTING/PRODUCTS

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

January 31, 2003

Approved 1-30-03

Bowerman Energy Company
ATTN: Ken Lyons (Agent)
P.O. Box 1929
San Angelo, TX 76902

RE: Approval of New Oil/Gas Field Designation
Mika, W. Lease; Well # 1; API# 42-095-32009
FIELD NAME: CASEY RYAN (L. CROSSCUT LIME); FIELD # 16231 245
Concho County, Texas, District 7C

Dear Operator:

well. This new field designation shall be considered to be the interval 2532 to 2538 as shown on the log section of the discovery well. The assigned new field name and eight digit field number as

where required. The assigned field number is 16231 245.

If a protest is received, your application will be set for a public hearing or the well will be placed into the nearest reasonable existing field.

Sincerely,

A handwritten signature in cursive script that reads "Jim Melear".

Jim Melear, Geologist
Permitting/Production Services

cc: RRC District 7C

DIRECT INQUIRIES TO: Eric Kittinger, 512-463-1825

Approval Letter

RAILROAD COMMISSION OF TEXAS
OFFICE OF GENERAL COUNSEL

OIL AND GAS DOCKET
NO. 08-0232541

IN THE WAHA (DEVONIAN) FIELD,
REEVES AND PECOS COUNTIES,
TEXAS

FINAL ORDER
AMENDING OPERATING RULES AND REGULATIONS
ADOPTED IN OIL AND GAS DOCKET NO. 8-56,933,
EFFECTIVE DECEMBER 9, 1966,
FOR THE WAHA (DEVONIAN) FIELD
REEVES AND PECOS COUNTIES, TEXAS

Final Order

The Commission finds that after statutory notice in the above-numbered docket heard on October 17, 2002, the presiding examiner has made and filed a report and recommendation containing findings of fact and conclusions of law, for which service was not required; that the proposed application is in compliance with all statutory requirements; and that this proceeding was duly submitted to the Railroad Commission of Texas at conference held in its offices in Austin, Texas.

The Commission, after review and due consideration of the examiner's report and recommendation, the findings of fact and conclusions of law contained therein, hereby adopts as its own the findings of fact and conclusions of law contained therein, and incorporates said findings of fact and conclusions of law as if fully set out and separately stated herein.

Therefore, it is ordered by the Railroad Commission of Texas that Rules 1, 2, 3 and 4 of the field rules adopted in Final Order No. 8-56,933, issued effective December 9, 1966, for the

RULE 1: The entire correlative interval from interval between 11,016' MD (-8399' TVD) and 11,560' MD (-8943' TVD) as shown on the Sonic log of the Socony Mobil Wayne Moore Lease Well No. 6, Section 5, Block C-8, PSL Survey, Pecos County, Texas, shall be designated as a single reservoir for proration purposes and be designated as the Waha (Devonian) Field.

HUNDRED SIXTY-SEVEN (467) feet to any property line, lease line or subdivision line and no vertical well shall be drilled nearer than NINE HUNDRED THIRTY-THREE (933) feet any applied for, permitted or completed vertical well in the same reservoir on the same lease, pooled unit or unitized tract.

For each horizontal drainhole the perpendicular distance from any point on such horizontal drainhole to any point of any property line, lease line or subdivision line shall be a

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SCHLUMBERGER

SONIC LOG - GAMMA RAY

WITH CALIFER

SCHLUMBERGER WELL SURVEYING CORPORATION

COUNTY PECOS

FIELD or

LOCATION WILDCAT

WELL WAYNE MOORE # 6

COMPANY SOCONY MOBIL OIL

COMPANY SOCONY MOBIL OIL COMPANY

WELL WAYNE MOORE # 6

FIELD WILDCAT

COUNTY PECOS STATE TEXAS

LOCATION 1980' FROM N & WL

Other Services:

Sec. 5 BLK. C-3 P S L SURVEY

111-R

Source of Sample	CIRCULATED	CIR. SAMPLE	CIR. SAMPLE	CIR. SAMPLE	CIR. SAMPLE
R _{in} @ Meas. Temp.	.066 @ 85 °F	.44 @ 78 °F	1.14 @ 85 °F	.94 @ 99 °F	1.26 @ 90 °F
R _{out} @ Meas. Temp.	.049 @ 89 °F	.22 @ 85 °F	.61 @ 88 °F	.53 @ 97 °F	.74 @ 92 °F
R _{rec} @ Meas. Temp.	- @ - °F	.82 @ 85 °F	1.42 @ 88 °F	1.36 @ 97 °F	1.62 @ 92 °F
Source: R _{in} R _{rec}	M -	M M	M M	M M	M M
R _{in} @ BHT	.041 @ 141 °F	.24 @ 144 °F	.48 @ 206 °F	.45 @ 203 °F	.54 @ 215 °F
Time Since Circ.	8 HRS.	5 1/2 HRS.	7 1/2 HOURS	6 HOURS	12 HOURS
Max. Rec. Temp.	141 °F	144 °F	206 °F	203 °F	215 °F
Equip. Location	2527 MCC	2525 MCC	2525 MCC	2527 MCC	2525 MCC
Recorded By	OWEN	DAVIS	DAVIS	OWEN	HAMPTON
Witnessed By	BLUNT	BEARCE	BEARCE	GREENLEE	THOMAS

FOLD HERE

The well description should include:

- The operator at the time the well log was run.
- The well number.
- The lease name, survey, and county.
- It may also be useful to include the leaseline calls for the well.

- The log should be identified by the date it was run and by the specific name of the type of log shown on the heading of the log.

- Reference the geological interval.
 - A good choice for this is the phrase “stratigraphic interval or its correlative equivalent.”
 - Use the log depths of the top and the base of the selected interval.

- Select a log that has been released to a log library or filed with the Railroad Commission.
- An annotated excerpt of the log can also be attached as an exhibit.

Example 13
*Pooling Geological Interval
from Well Log*

The Pooled Unit hereby formed and created shall cover that correlative stratigraphic interval (hereinafter called "Pooled Interval") that occurs at log depths from 4,245 feet to 4,522 feet on the Gamma-Ray/Induction Log run on July 4, 1976, of Well No. 1 on the Sam Jones Lease in the HP&CC Survey, A-324, Houston County, Texas.

Example 14

Pooling Geological Interval from Well Log with Regulatory Field Reference

The Pooled Unit hereby formed and created shall cover that correlative stratigraphic interval (hereinafter called "Pooled Interval") that occurs at log depths from 4,245 feet to 4,522 feet on the Gamma-Ray/Induction Log run on July 4, 1976, of Well No. 1 on the Sam Jones Lease in the HP&CC Survey, A-324, Houston County, Texas, said Pooled Interval having been designated by the Railroad Commission of Texas as the Big Time (Frio) Field.

Example 15

Unit Agreement – Geological Interval from Well Log with Regulatory Field Reference

Unitized Formation means the subsurface portion of the Unit Area commonly known as the Big Time (Frio) Field, Blanco County, Texas, described as that stratigraphic interval or its correlative equivalent between the log depths of 4,245 feet and 4,522 feet in the Giant Oil Company, Sam Jones Well No. 1 located 467 feet from the south line and 467 from the east line of the HP&CC Survey, Blanco County, Texas, as shown on the Gamma Ray/Induction log run on July 4, 1976, a portion of which log is attached as Exhibit C.

Example 16
*Unit Agreement – Formation
and Well Log Reference*

Unitized Formation is the subsurface portion of the Unit Area identified as the Eagle Ford and Woodbine formations herein defined as those strata, or their correlative equivalents, encountered between the log depths of 3914 feet and 4556 feet as shown on the Halliburton Well Log, dated October 10, 1942, of Exxon Corporation Republic Insurance Company "B" Well No. 1.

Overview

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Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

8,000'

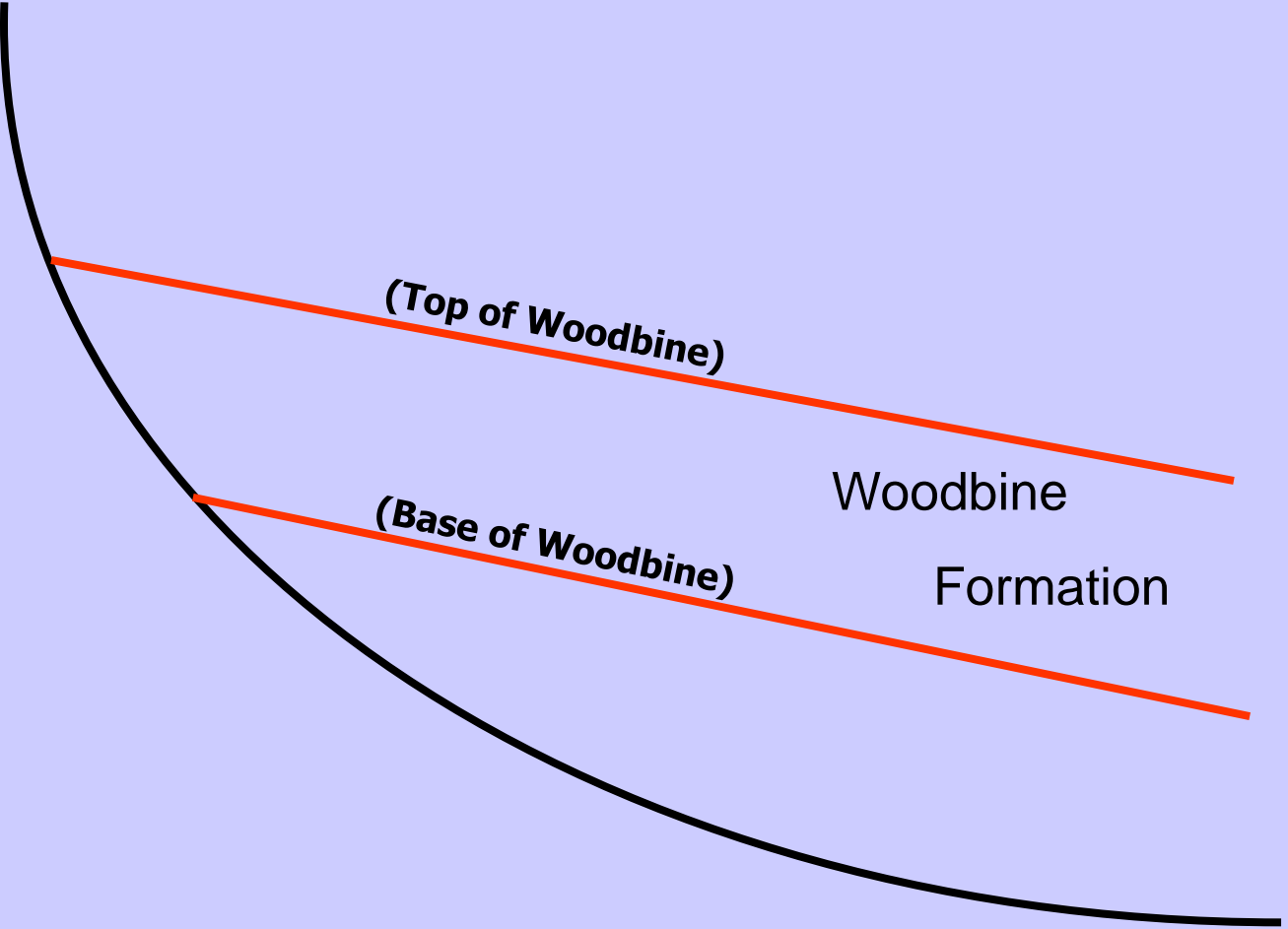
9,000'



(Top of Woodbine)

(Base of Woodbine)

Woodbine
Formation



Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

8,000'

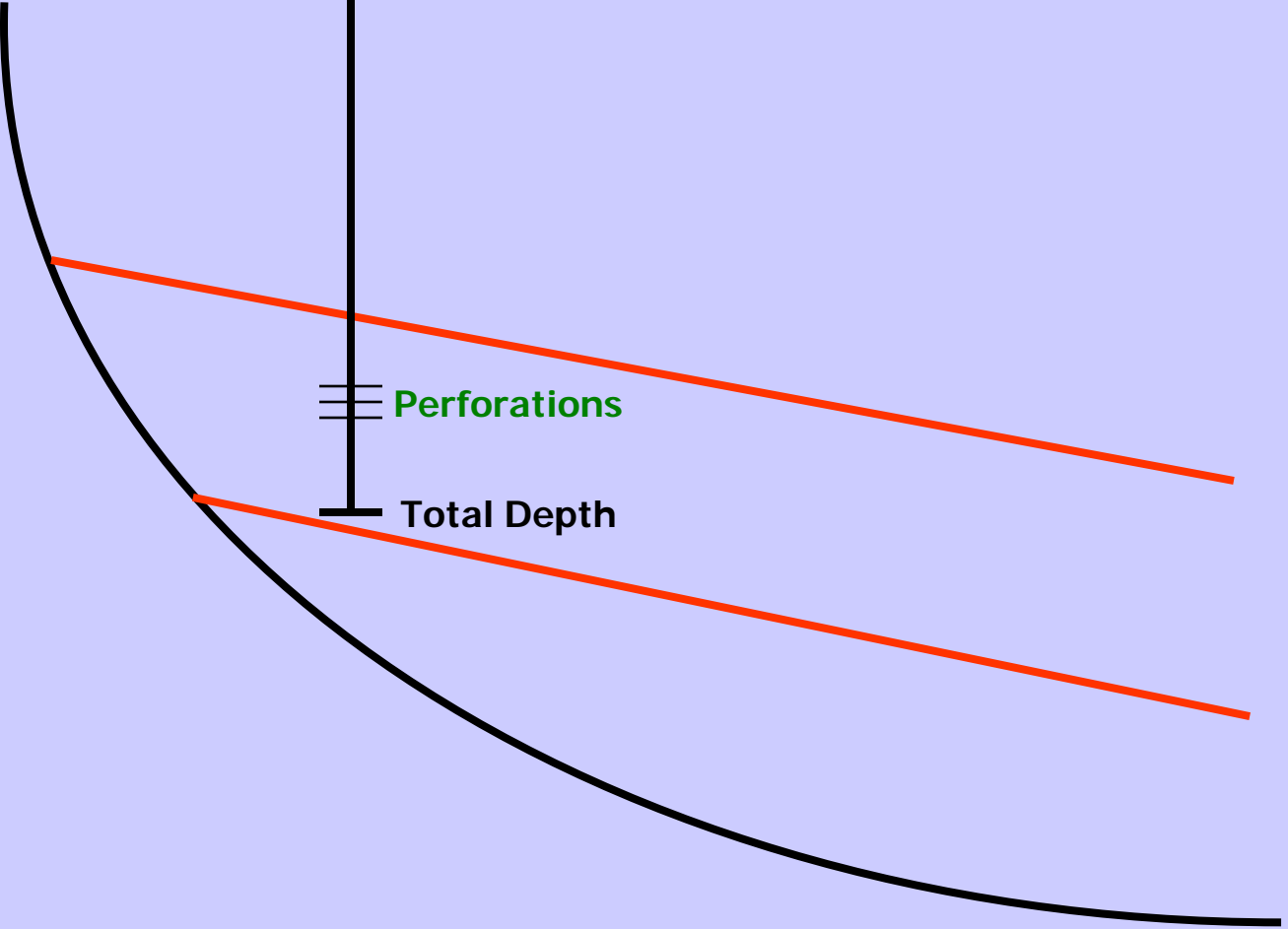
9,000'



Perforations



Total Depth



RAILROAD COMMISSION OF TEXAS
Oil and Gas Division

Form W-2
Rev. 4/1/83
483-046

Type or print only

API No. 42-				7. RRC District No.	
Oil Well Potential Test, Completion or Recompletion Report, and Log					
1. FIELD NAME (as per RRC Records or Wildcat)		2. LEASE NAME		9. Well No.	
3. OPERATOR'S NAME (Exactly as shown on Form P-5, Organization Report)			RRC Operator No.		10. County of well site
4. ADDRESS					
5. If Operator has changed within last 60 days, name former operator					
6a. Location (Section, Block, and Survey)			6b. Distance and direction to nearest town in this county.		
12. If workover or reclass, give former field (with reservoir) # GAS ID or OIL LEASE #		GAS ID or OIL LEASE #	Oil - O Gas - G	WELL NO.	
13. Type of electric or other log run		14. Completion or recompletion date			
11. Purpose of filing					
Initial Potential <input type="checkbox"/>					
Retest <input type="checkbox"/>					
Reclass <input type="checkbox"/>					
Well record only (explain in Remarks) <input type="checkbox"/>					

SECTION I: POTENTIAL TEST DATA IMPORTANT: Test should be for 24 hours unless otherwise specified in field rules.

15. Date of test	16. No. of hours tested	17. Production method (Flowing, Gas Lift, Jetting, Pumping—Size # Type of pump)			18. Choke size
19. Production during Test Period	Oil - BBLS	Gas - MCF	Water - BBLS	Gas - Oil Ratio	Flowing Tubing Pressure PSI
20. Calculated 24 Hour Rate	Oil - BBLS	Gas - MCF	Water - BBLS	Oil Gravity—API—60°	Casing Pressure PSI
21. Was swab used during this test? Yes <input type="checkbox"/> No <input type="checkbox"/>		22. Oil produced prior to test (New # Reworked wells)			23. Injection Gas—Oil Ratio

REMARKS:

INSTRUCTIONS: File an original and one copy of the completed Form W-2 in the appropriate RRC District Office within 30 days after completing a well and within 10 days after a potential test. If an operator does not properly report the results of a potential test within the 10-day period, the effective date of the allowable assigned to the well will not extend back more than 10 days before the W-2 was received in the District Office. (Statewide Rules 16 and 51) To report a completion or recompletion, fill in both sides of this form. To report a retest, fill in only the front side.

WELL TESTER'S CERTIFICATION
I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I conducted or supervised this test by observation of (a) meter readings or (b) the top and bottom gauges of each tank into which production was run during the test. I further certify that the potential test data shown above is true, correct, and complete, to the best of my knowledge.

Signature: Well Tester _____ Name of Company _____ RRC Representative _____

OPERATOR'S CERTIFICATION
I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this report, that this report was prepared by me or under my supervision and direction, and that data and facts stated therein are true, correct, and complete, to the best of my knowledge.

Typed or printed name of operator's representative _____ Title of Person _____

Telephone: Area Code _____ Number _____ Date: mo. / day / year _____ Signature _____

**Railroad
Commission
of Texas**

Form W-2

SECTION II DATA ON WELL COMPLETION AND LOG (Not Required on Retest)

24. Type of Completion: New Well Deepening Plug Back Other

25. Permit to Drill, Plug Back or Deepen DATE PERMIT NO.
Rule 37 CASE NO.
Exception
Water Injection PERMIT NO.
Permit
Salt Water Disposal PERMIT NO.
Permit

26. Notice of Intention to Drill this well was filed in Name of

27. Number of producing wells on this lease in this field (reservoir) including this well

28. Total number of acres in this lease

than inclination (Form W-12)? Yes No

34. Top of Pay 35. Total Depth 36. P. B. Depth 37. Surface Casing Determined by: Field Rules Recommendation of T.D.W.R. Railroad Commission (Special)

38. Is well multiple completion. list all reservoir names (completions in this well) and Oil Lease or Gas ID No. FIELD # RESERVOIR GAS ID or OIL LEASE # Oil-O Gas-G WELL #

40. Intervals Drilled by: Rotary Tools Cable Tools

41. Name of Drilling Contractor

42. Is Cementing Affidavit Attached? Yes No

43. CASING RECORD (Report All Strings Set in Well)

CASING SIZE	WT #/FT.	DEPTH SET	MULTISTAGE TOOL DEPTH	TYPE # AMOUNT CEMENT (sacks)	HOLE SIZE	TOP OF CEMENT	SLURRY VOL. cu. ft.

44. LINER RECORD

Size	TOP	Bottom	Sacks Cement	Screen

45. TUBING RECORD

Size	Depth Set	Packer Set

46. Producing Interval (this completion) Indicate depth of perforation or open hole

From	To
From	To
From	To
From	To

Example 17 *Total Depth*

... *this Lease shall terminate as to* all of the lands covered by the Lease except for the minimum amount of acreage necessary to be allocated to each producing well for full allowable production under the then applicable rules and regulations (regardless of what allocation Lessee shall actually have made to the well) and as to *all depths down to a depth of 100 feet below the total depth drilled in each producing well.*

Example 18 *Total Depth*

If Lessee fails to commence this program, or subsequently stops performance, in either event, *this Lease shall terminate as to all lands covered by this Lease save and except those depths from the surface of the ground to 100 feet below the total depth of the well* on the lands allocated to each producing or proration unit under the applicable spacing regulations of the applicable regulatory agency.

Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

8,000'

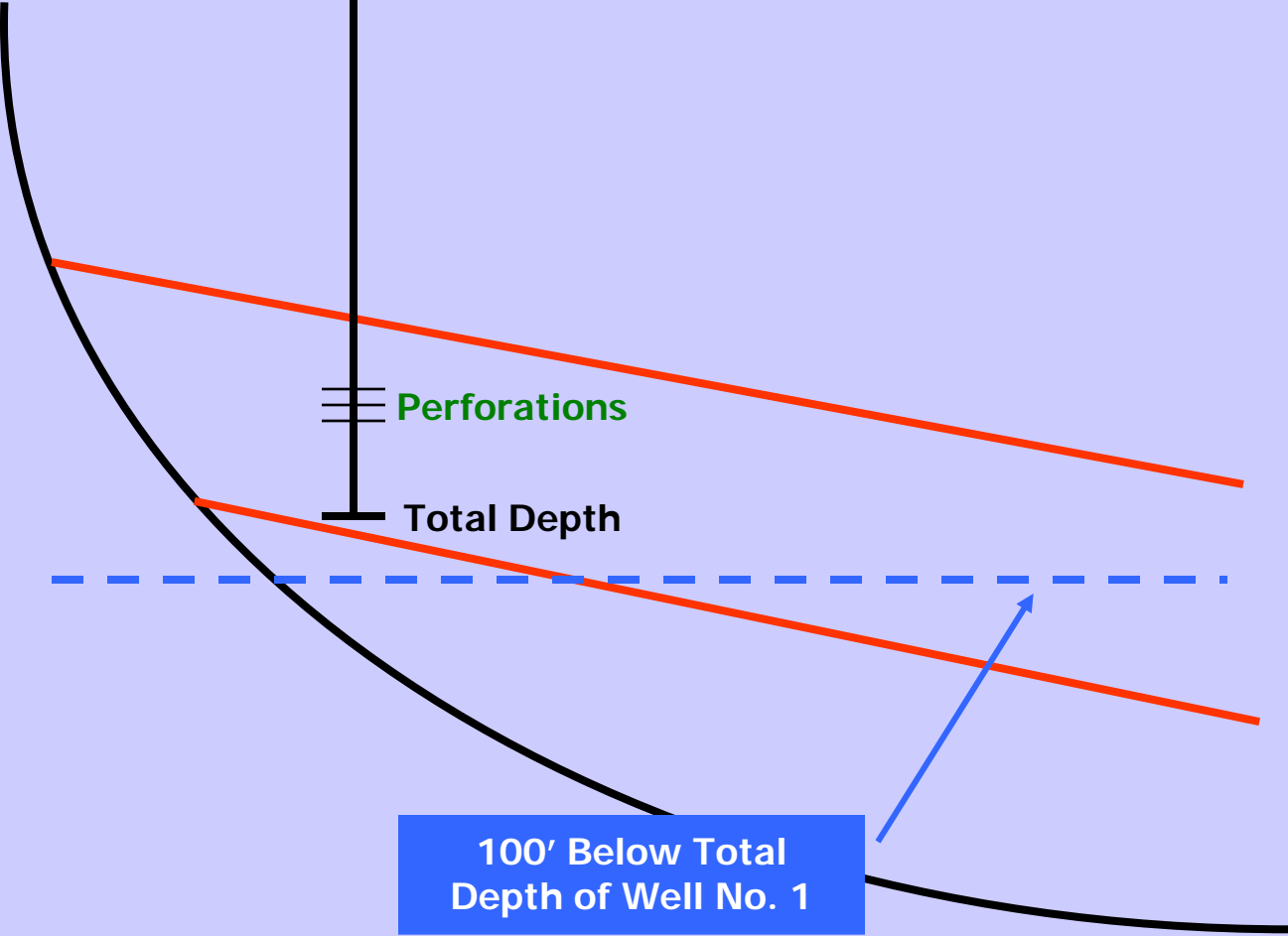
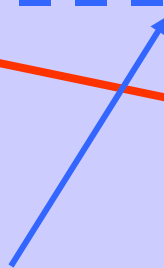
9,000'

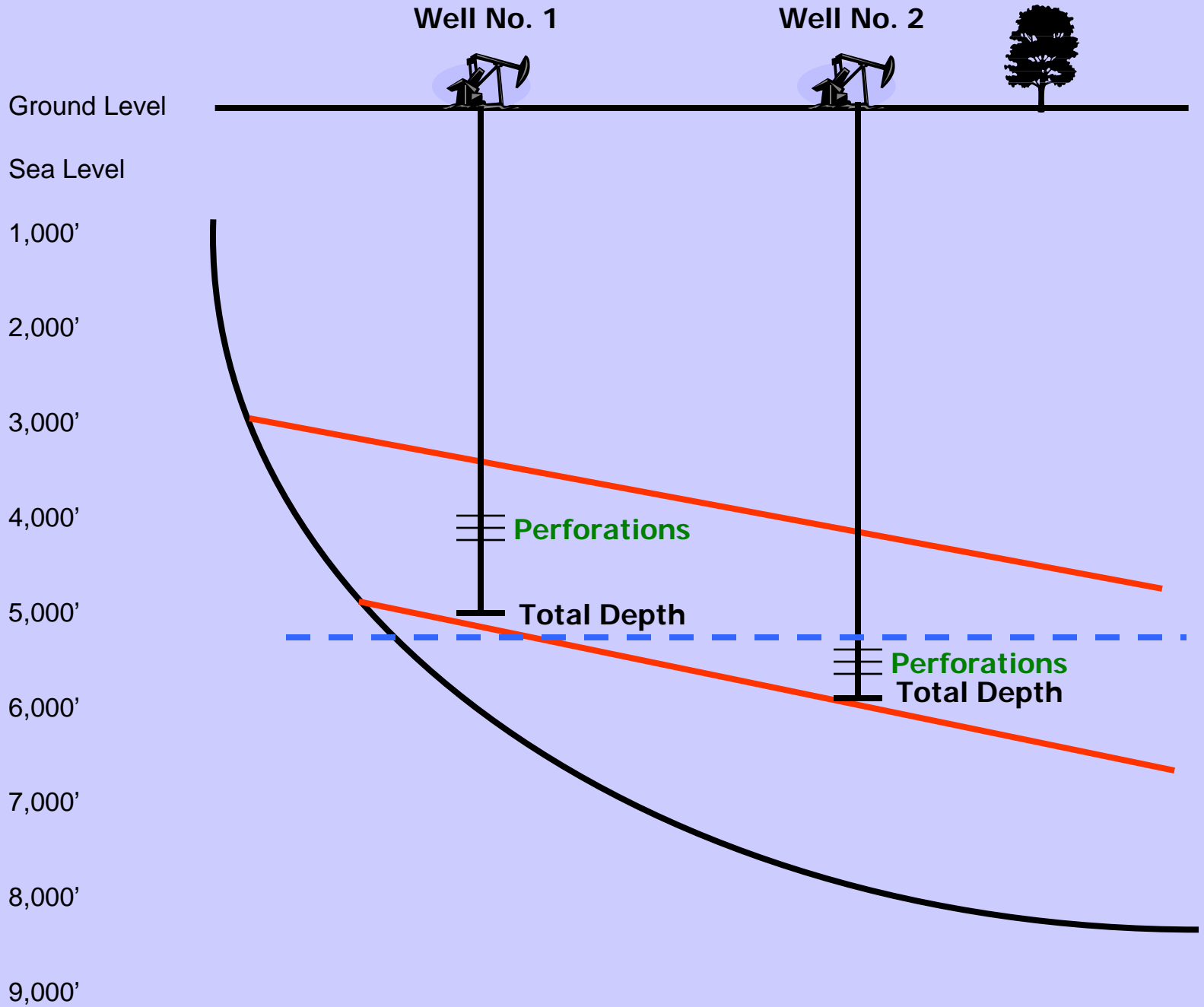


Perforations

Total Depth

100' Below Total
Depth of Well No. 1





Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

8,000'

9,000'

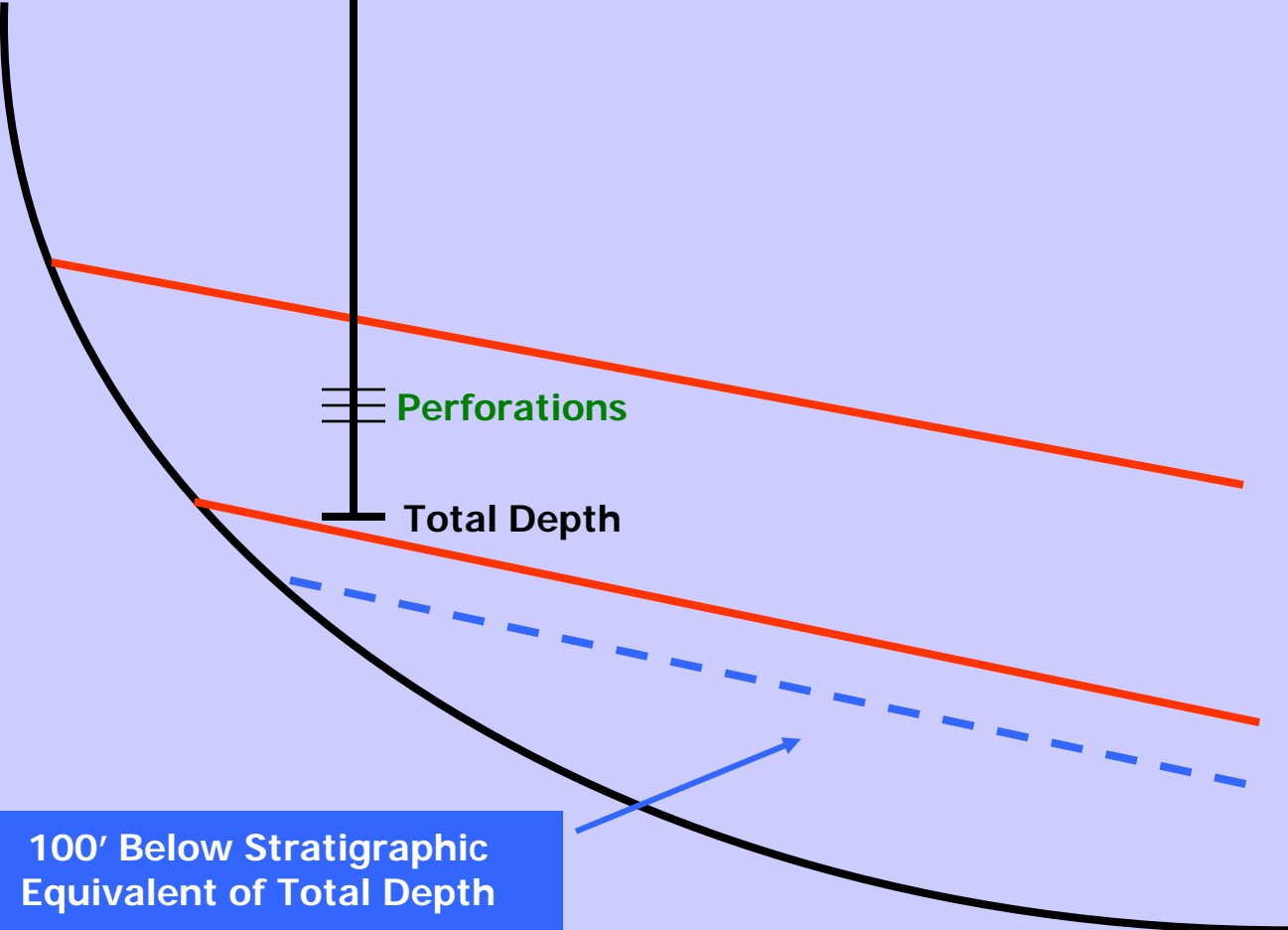
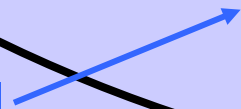


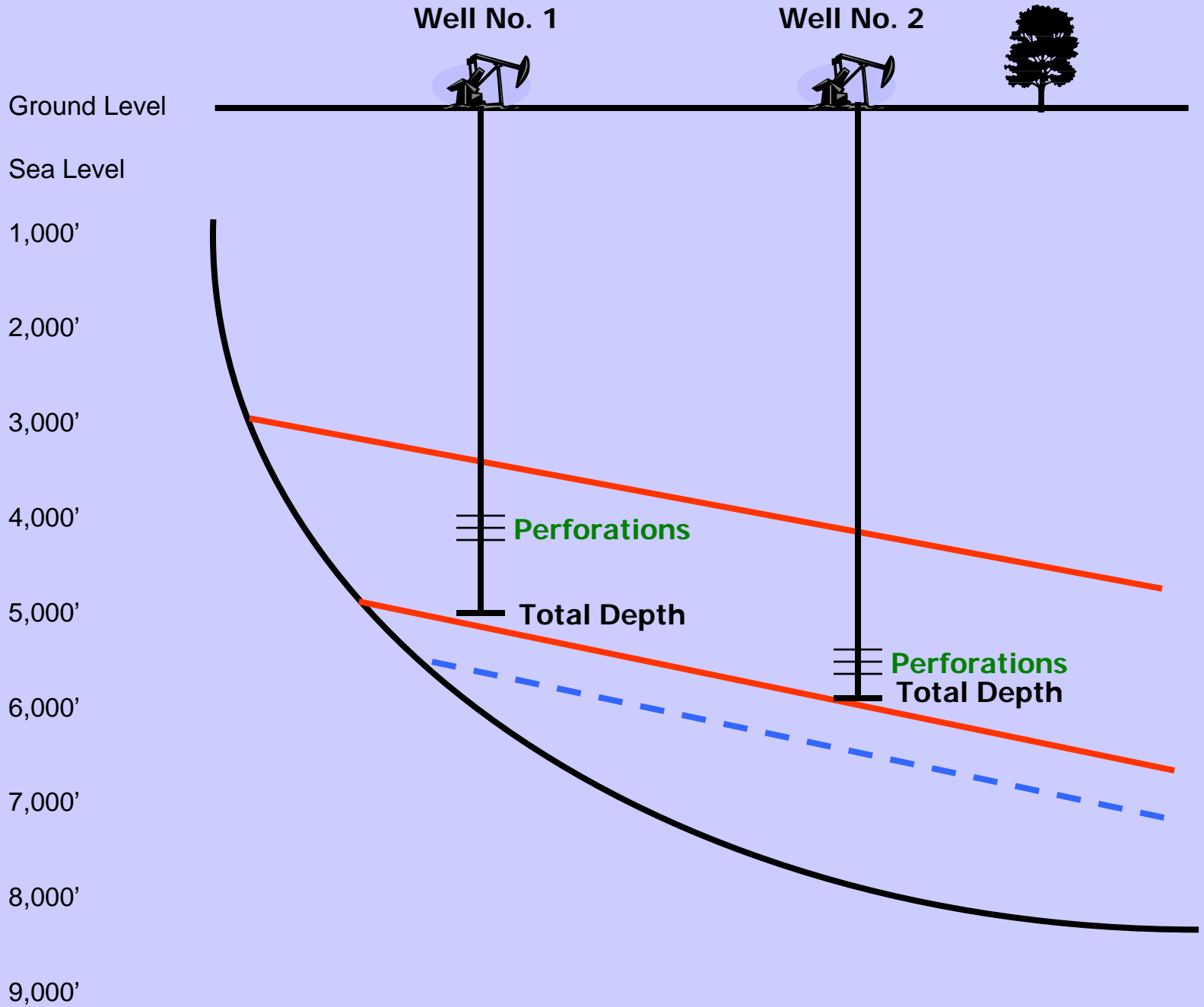
Perforations



Total Depth

100' Below Stratigraphic
Equivalent of Total Depth





Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

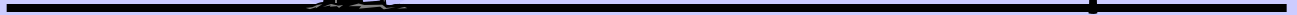
5,000'

6,000'

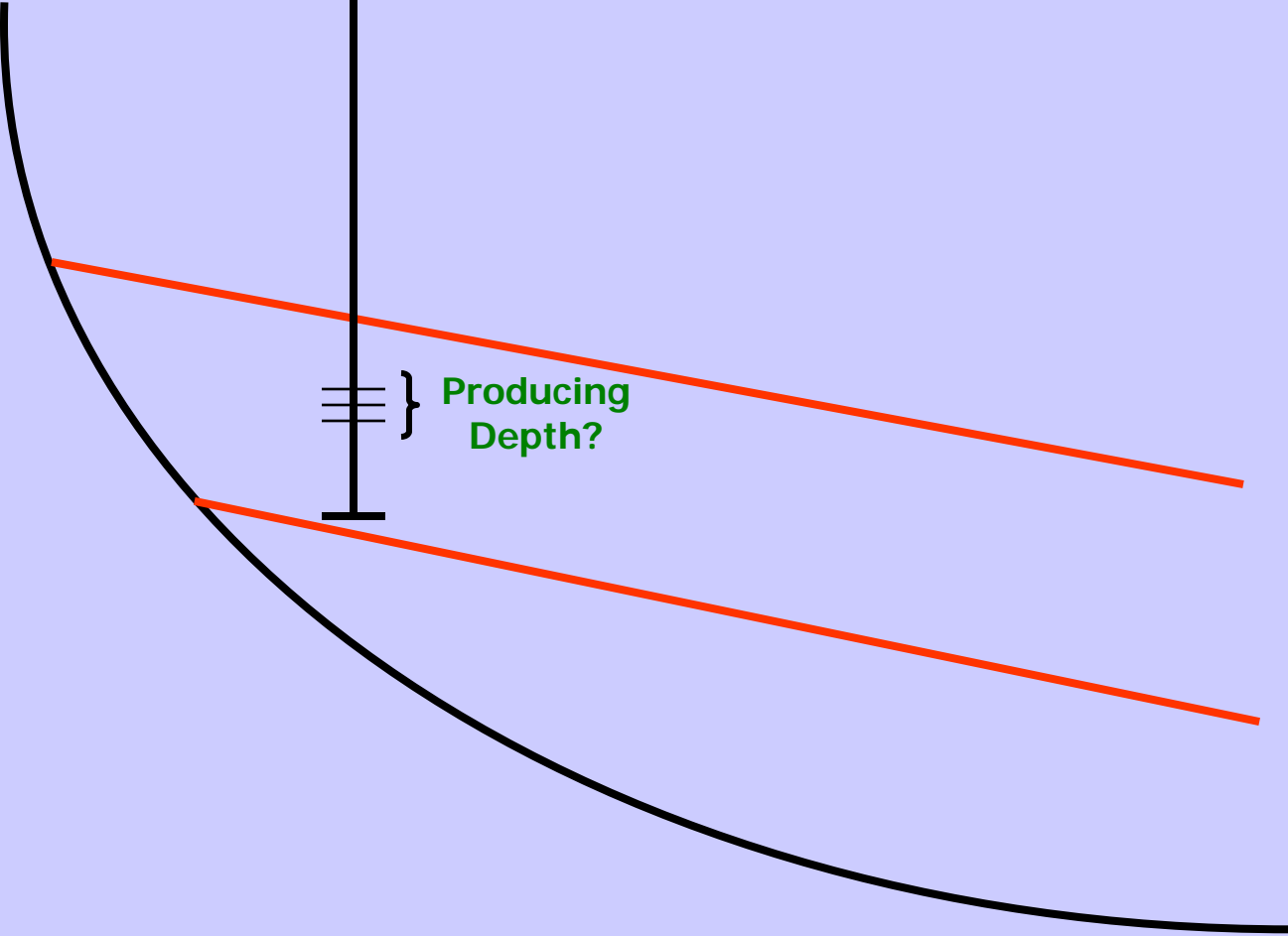
7,000'

8,000'

9,000'



Producing
Depth?



Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

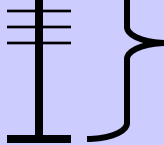
5,000'

6,000'

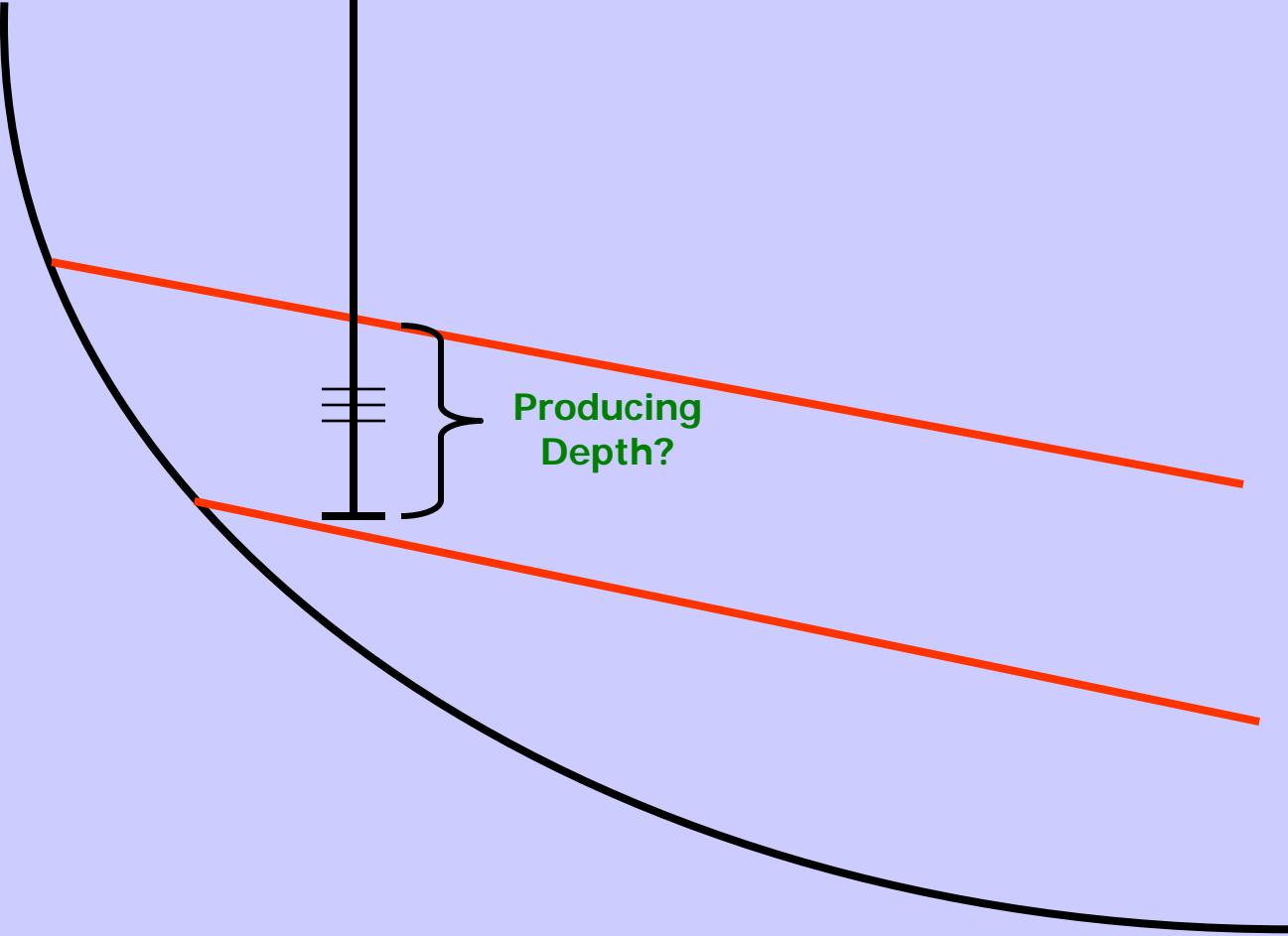
7,000'

8,000'

9,000'



Producing
Depth?



Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

7,000'

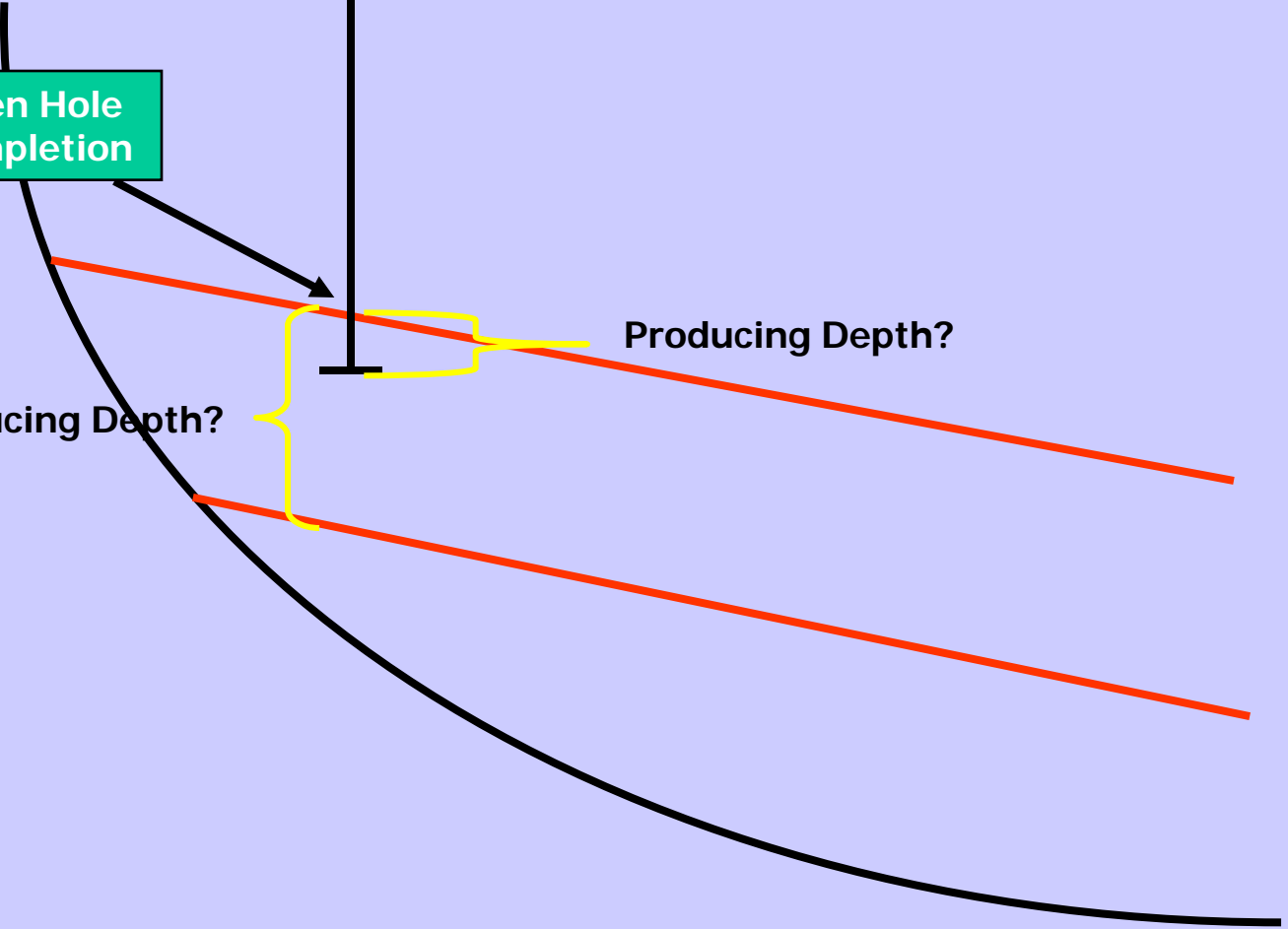
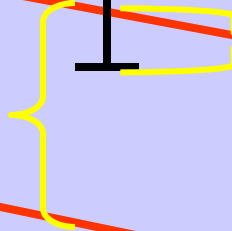
8,000'

9,000'

**Open Hole
Completion**

Producing Depth?

Producing Depth?



Example 19 *Deepest Producing Depth*

At the end of the primary term of this Lease, or on the termination of this Lease for any reason, *the Lessee may continue to hold under lease* only that portion of the lease premises which is in a producing or proration unit ("Unit"), actually producing oil, gas, or associated liquid hydrocarbons in paying quantities, and *only as to a depth 100 feet below the deepest producing depth in the Unit*. As to the portion of the lease premises not held by a Unit, the Lease shall terminate except as provided below.

Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

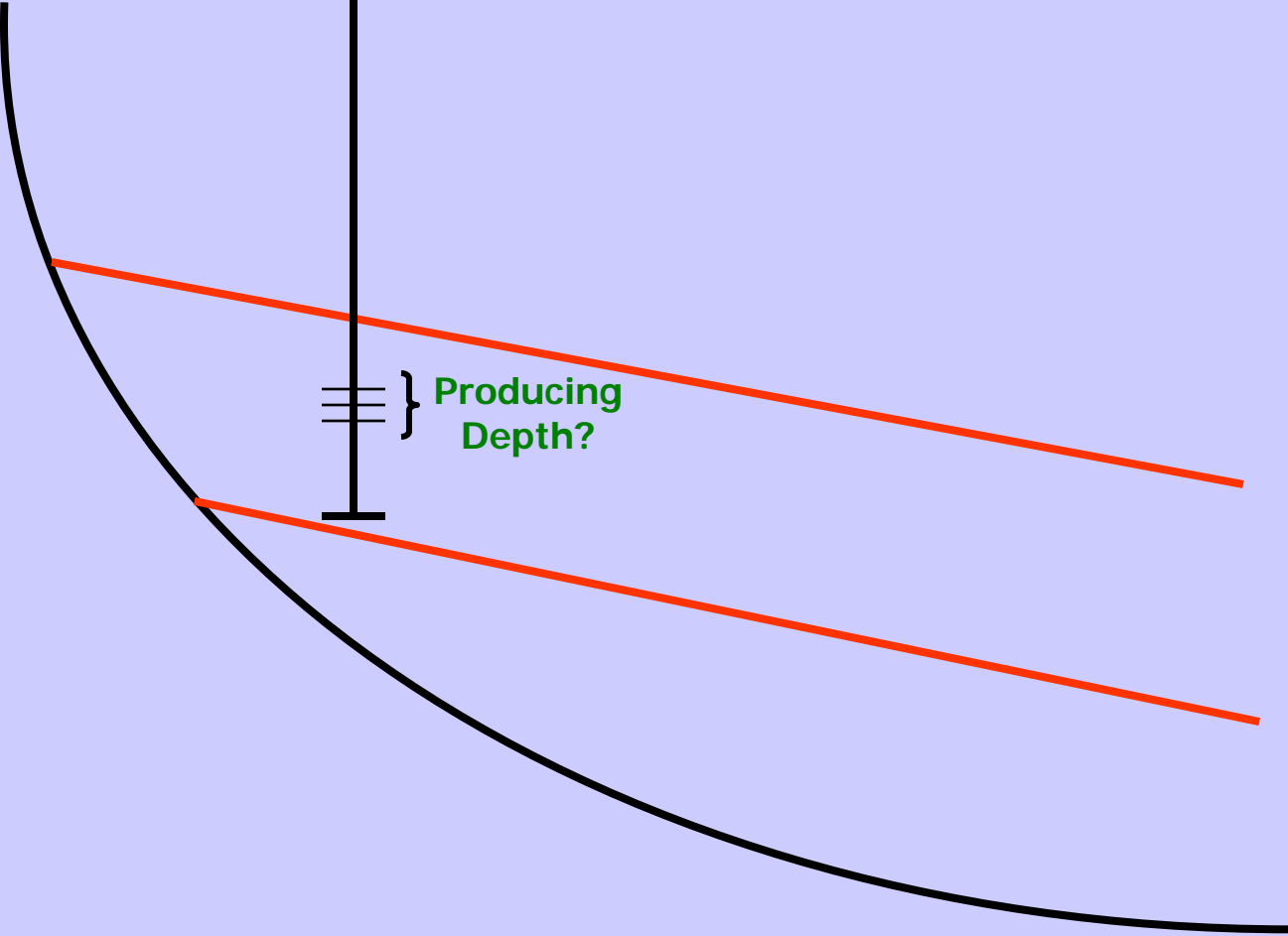
7,000'

8,000'

9,000'



} Producing Depth?



Well No. 1

Ground Level

Sea Level

1,000'

2,000'

3,000'

4,000'

5,000'

6,000'

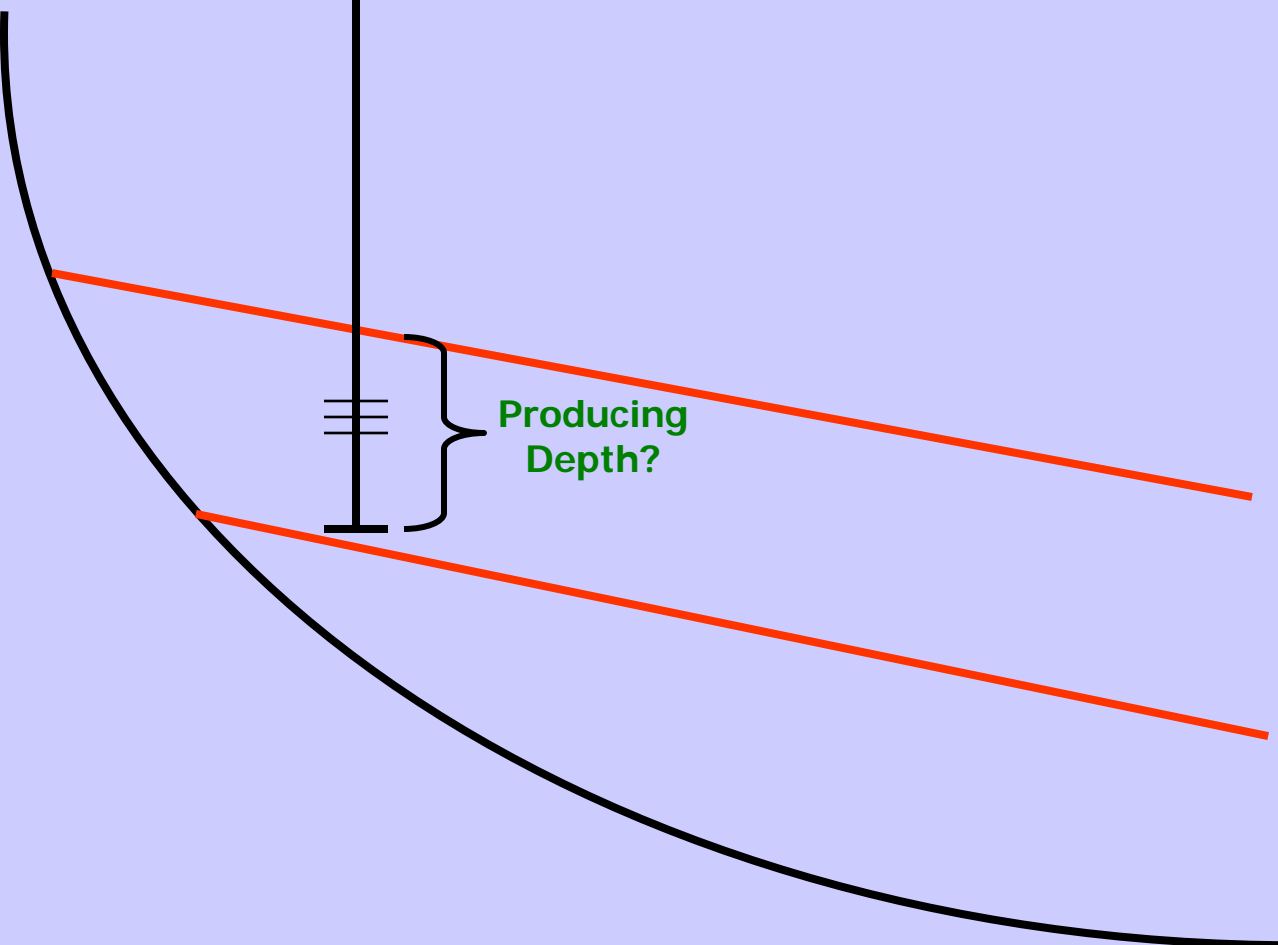
7,000'

8,000'

9,000'



Producing
Depth?



Example 20 *Producing Depth*

At and after the expiration of the primary term, failure to commence or prosecute the continuous development program or a cessation of drilling operations for more than 60 days shall cause this Lease to terminate as to all of the land covered by this Lease except: (i) the lands comprising the producing or proration unit around each well as designated by the applicable governmental agency; and, (ii) *as to depths 100 feet above and below the producing depths in each well.*

Example 21
*Depth from which Production
Is Being Obtained*

Five years from the date production from the lease premises is first established, if this Lease is then in full force and effect, it shall terminate *as to all depths 100 feet below the greatest depth from which production is being obtained* on the lease premises or lands pooled with the lease premises.

Example 22

- If this Lease is in force and effect as to any part of the lease premises at the expiration of 10 years from the end of the primary term, the Lease shall terminate as to all of the oil and gas rights in all depths within the boundary lines of each producing or proration unit 100 feet below the stratigraphic equivalent of the base of the deepest producing depth from which Lessee is producing oil or gas in paying quantities. A producing depth shall be identified by the electric log or logs for the producing well located on the proration or producing unit.

Example 23

Producing Perforation

- Five years from the date production from the lease premises is first established, if this Lease is then in full force and effect, it shall *terminate as to all depths 100 feet below the deepest producing perforation in any well producing in paying quantities* on the lease premises or lands pooled with the lease premises.

Example 24

HORIZONTAL SEVERANCE: This lease shall, after the expiration of the primary term and the expiration of the above described continuous drilling and all accumulated time, terminate insofar as it covers *depths greater than 100 feet below the stratigraphic equivalent of the deepest horizon producing, or capable of producing, oil or gas in commercial quantities*, from a wellbore previously drilled thereon, on a unit by unit basis.

USE WITH CAUTION:

Producing

Capable of Producing

Producing in Paying Quantities

Producing in Commercial Quantities

Productive

Example 25

Five years after expiration of the primary term, this lease will terminate as to depths greater than 100 feet below the stratigraphic equivalent of the base of the deepest perforated interval in any well on the lease or on lands pooled with the lease. To qualify as a well for purposes of the previous sentence, the well must be producing in paying quantities.

Practice Suggestions

- When depth will suffice, keep it simple.
- To follow the geology, refer to the top or base of the interval, and use words like stratigraphic interval or correlative equivalent.
- Refer to producing wells with words like total depth and perforated interval. Avoid less certain terms like producing, productive, and capable of producing.
- To provide the most clear and certain depth description, use a detailed reference to a stratigraphic interval in a specific well log.

