

18th Williston Basin Petroleum Conference

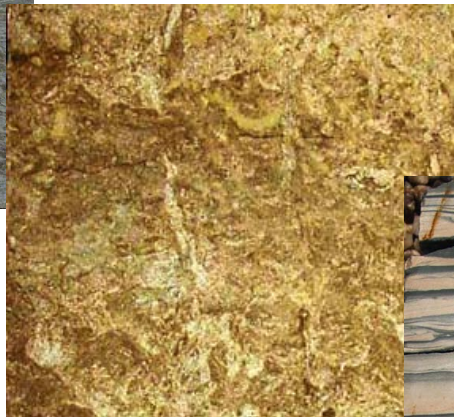
May 2 - 4, 2010

Bismarck, ND

**2010
Bakken
Three Forks
Core Workshop**

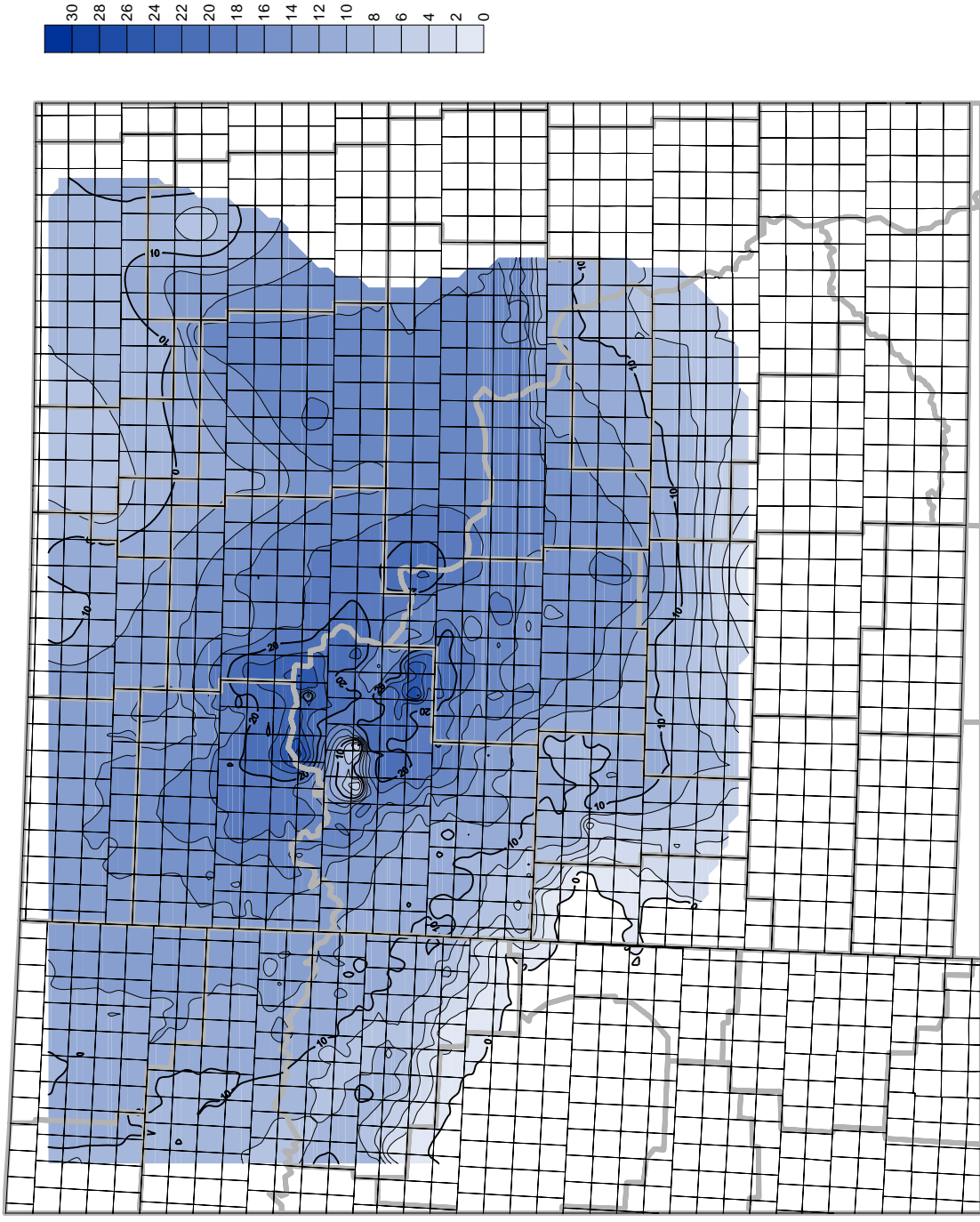


**Julie A. LeFever
Richard D. LeFever
Stephan H. Nordeng**

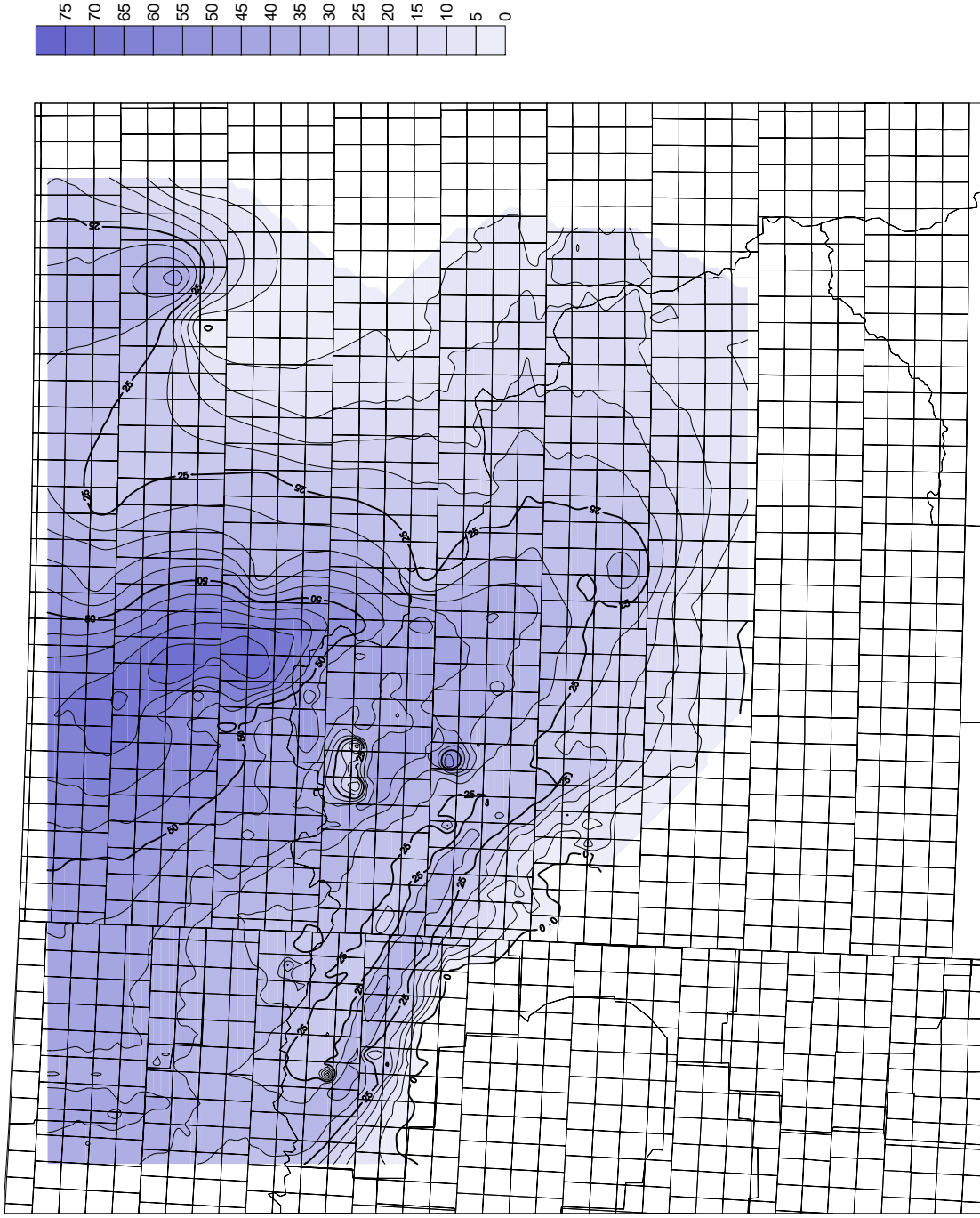


**GEOLOGIC INVESTIGATIONS NO. 112
NORTH DAKOTA GEOLOGICAL SURVEY
Edward C. Murphy, State Geologist
Lynn D. Helms, Director Dept. of Mineral Resources
2010**

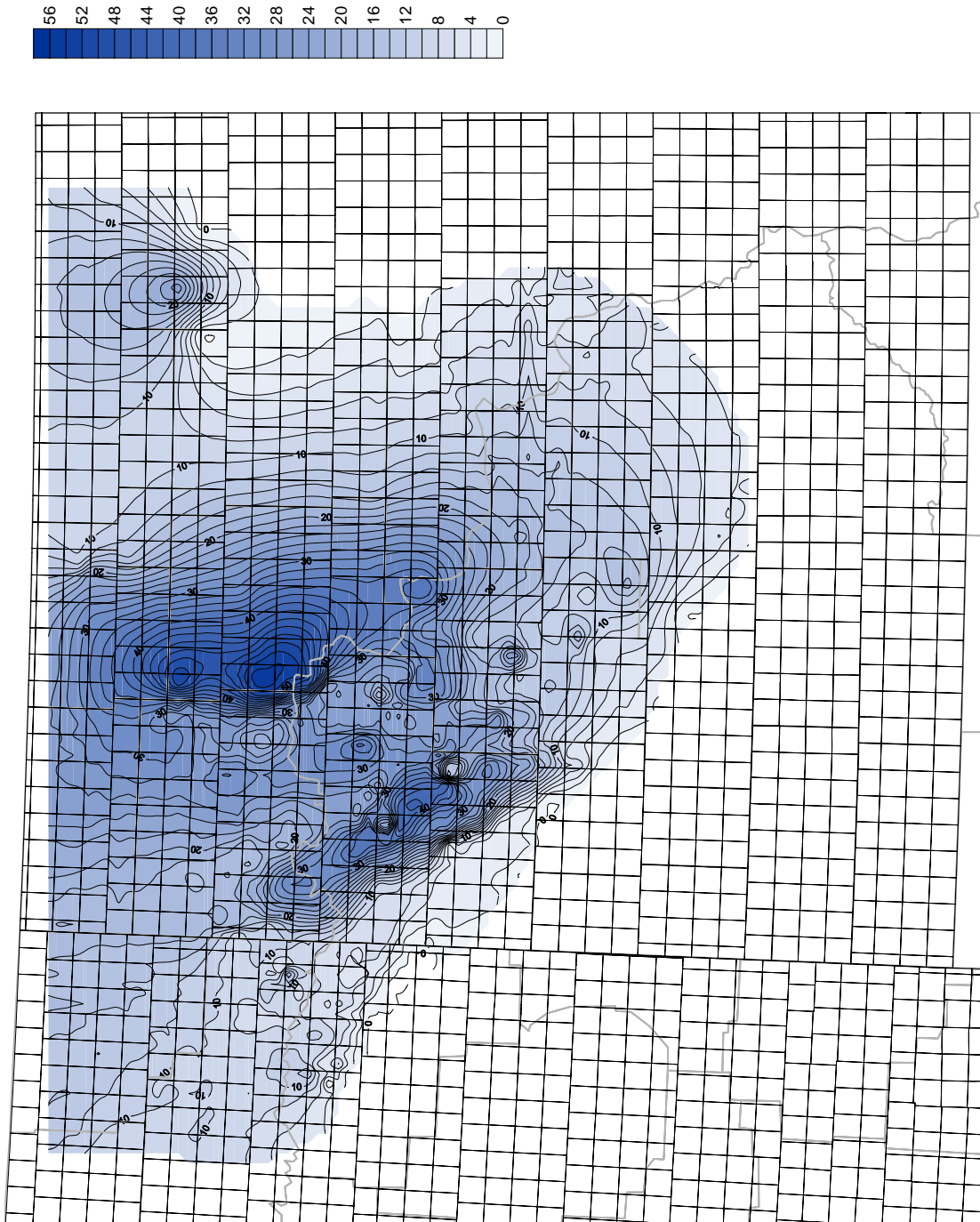




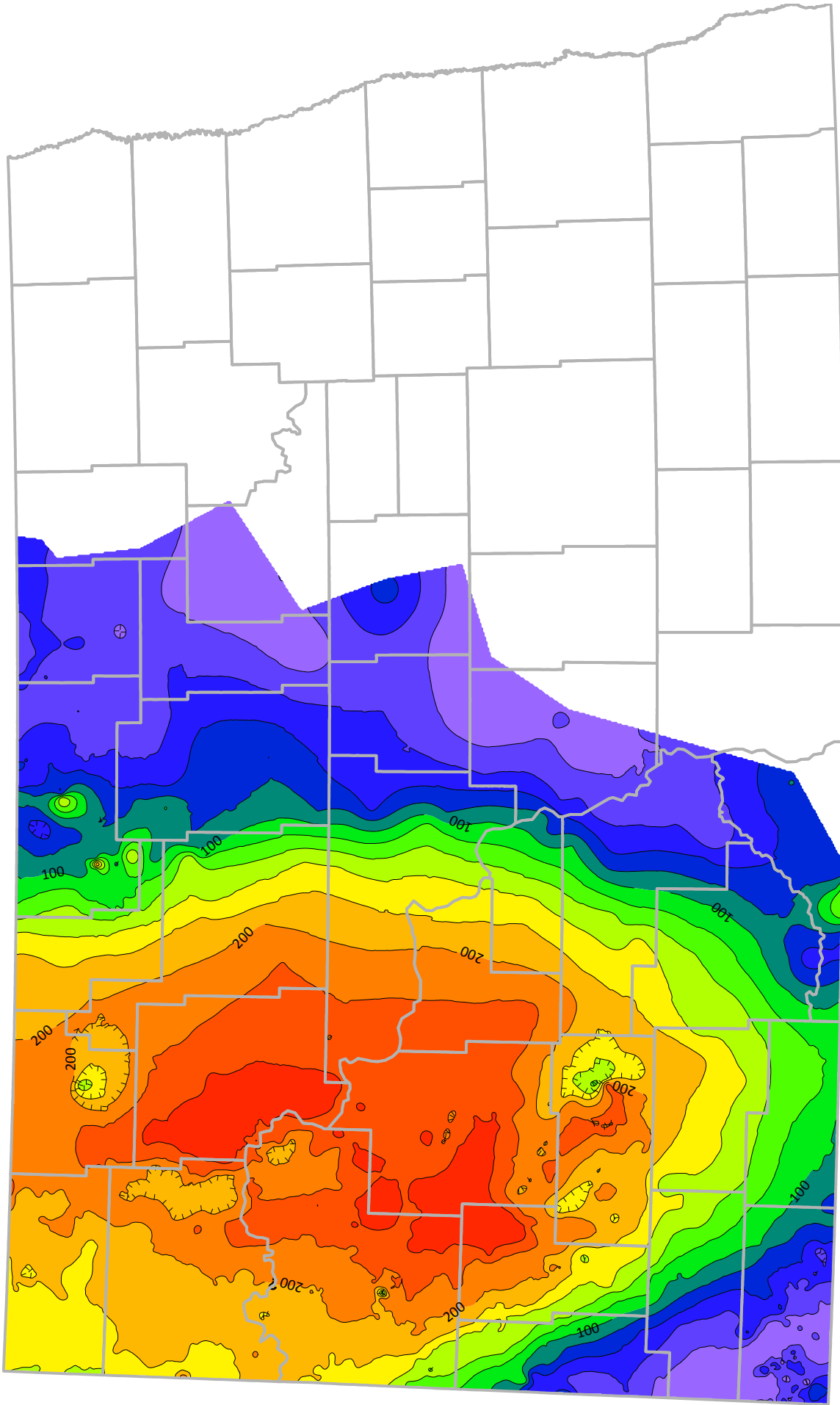
Isopach map of the Bakken Upper Shale Member (C.I. = 2 ft.)



Isopach map of the Bakken Middle Member (C.I. = 5 ft.)

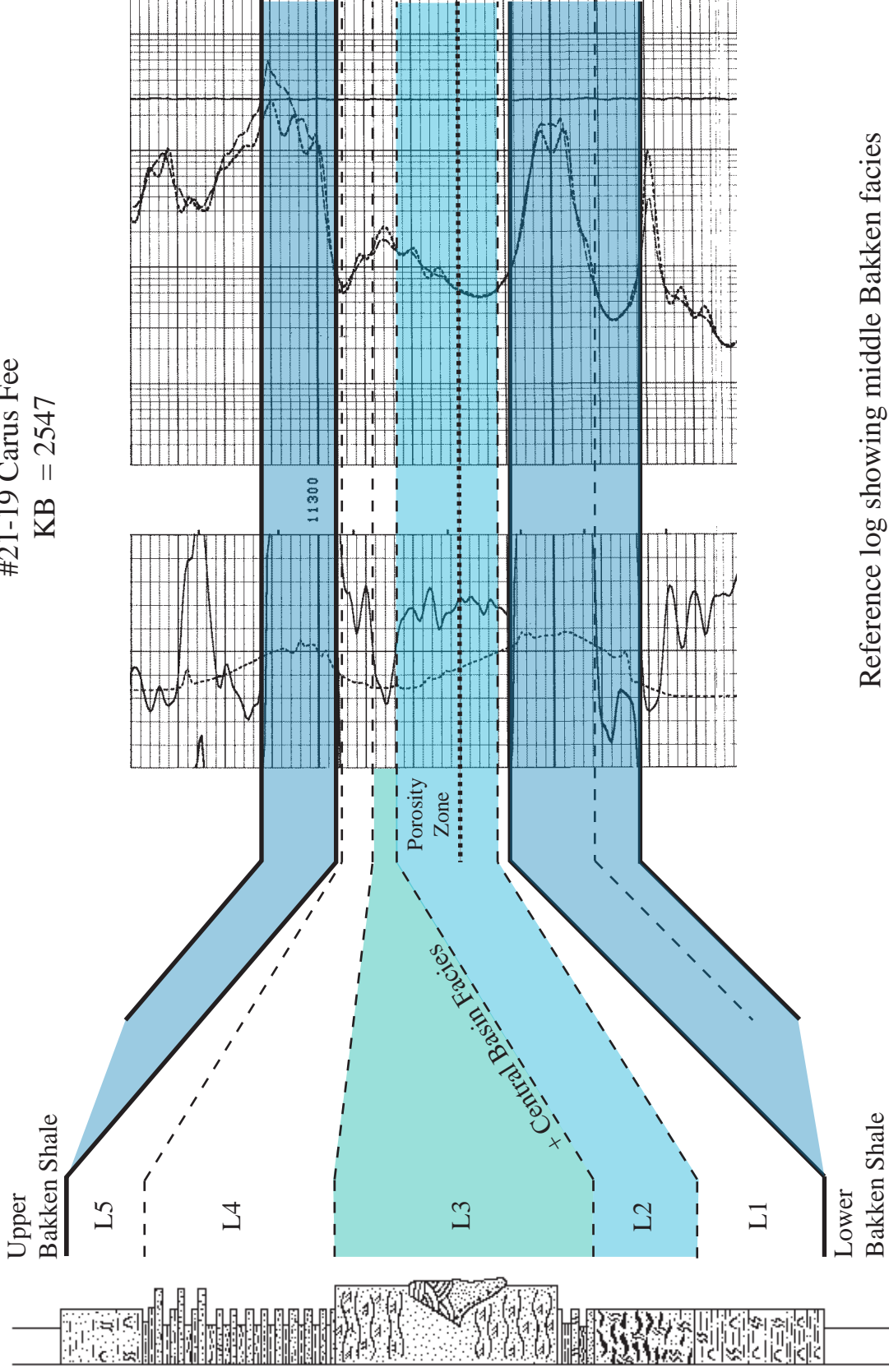


Isopach of the Bakken Lower Shale Member (C.I. = 2 ft.)



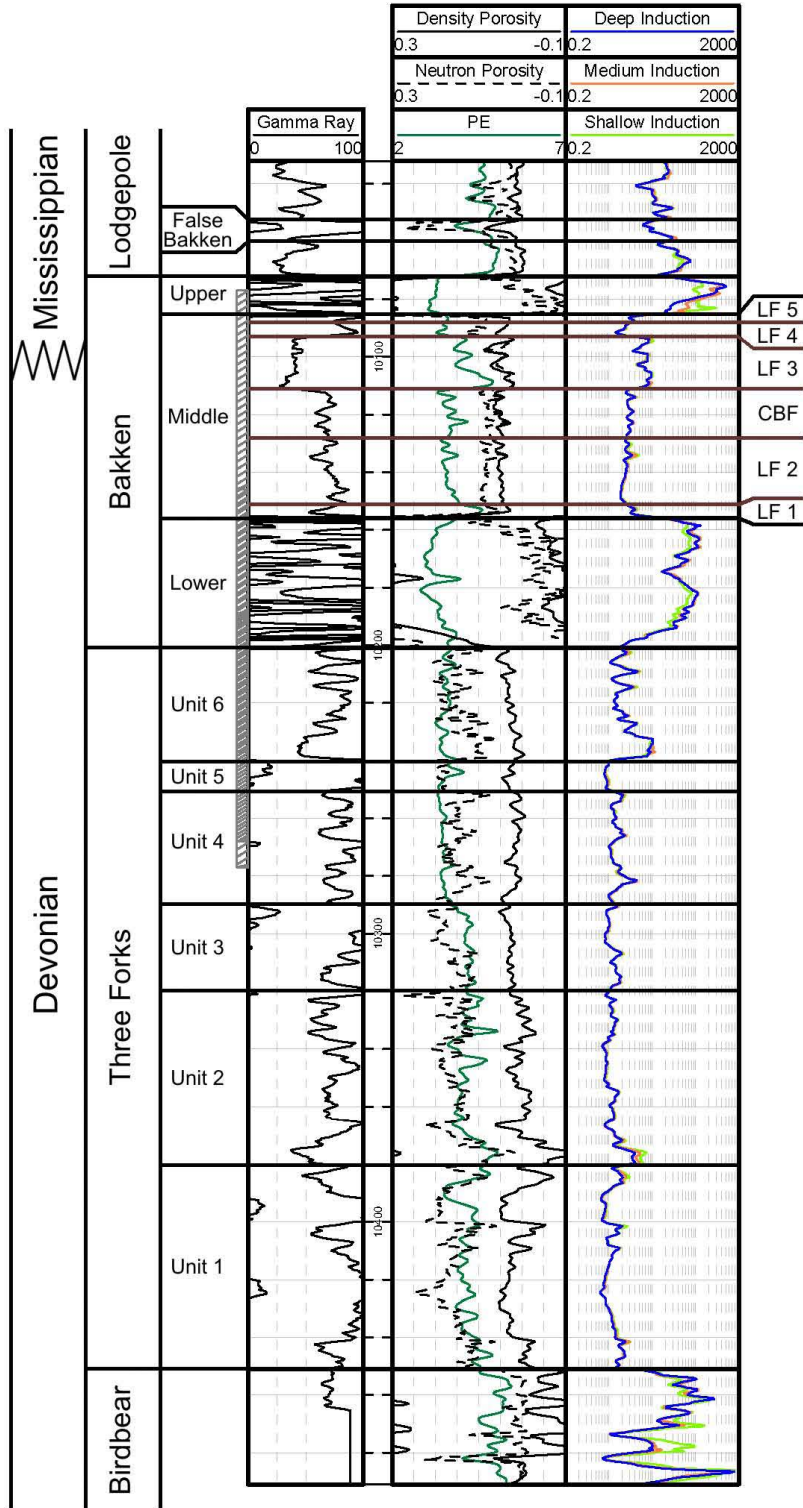
Isopach map of the Three Forks Formation (C.I. = 20 ft.)

NENW Sec. 19, T.147N., R.96W.
Maxus Exploration Co.
#21-19 Carus Fee
KB = 2547

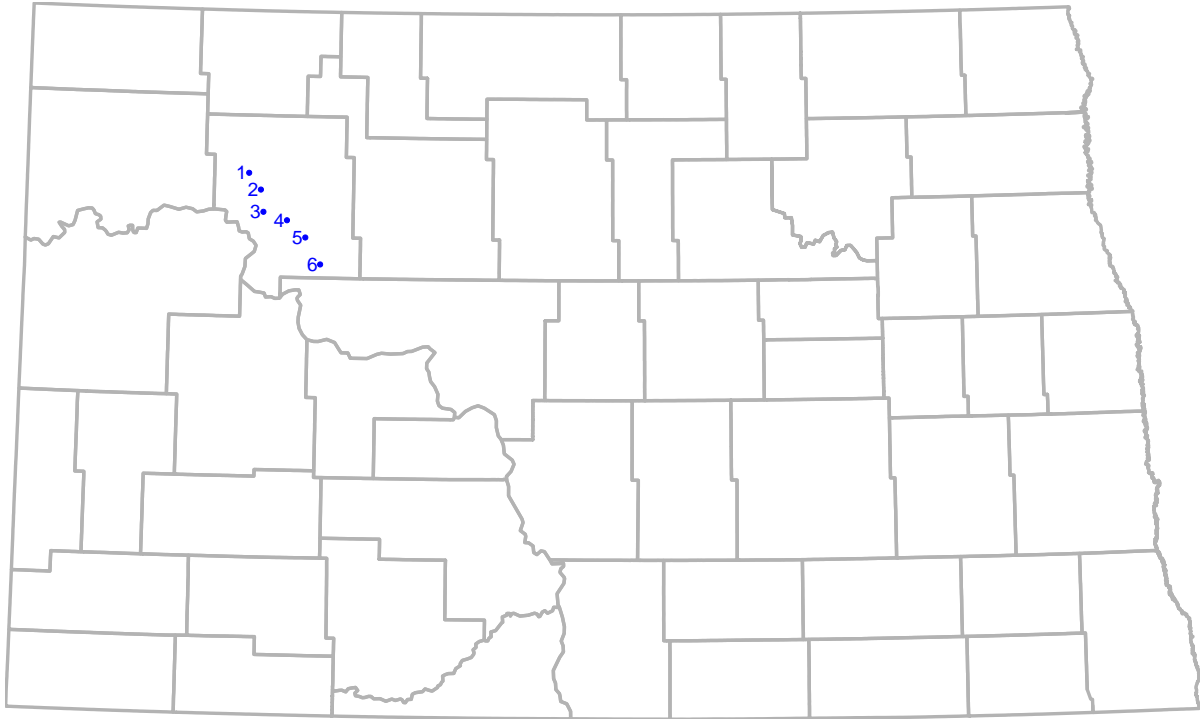


Reference log showing middle Bakken facies

33061005810000
 T154N R92W S28
 FIDELITY EXPLORATION & PRODUCTION COMPANY
 DEADWOOD CANYON RANCH 43-28H



Reference Section

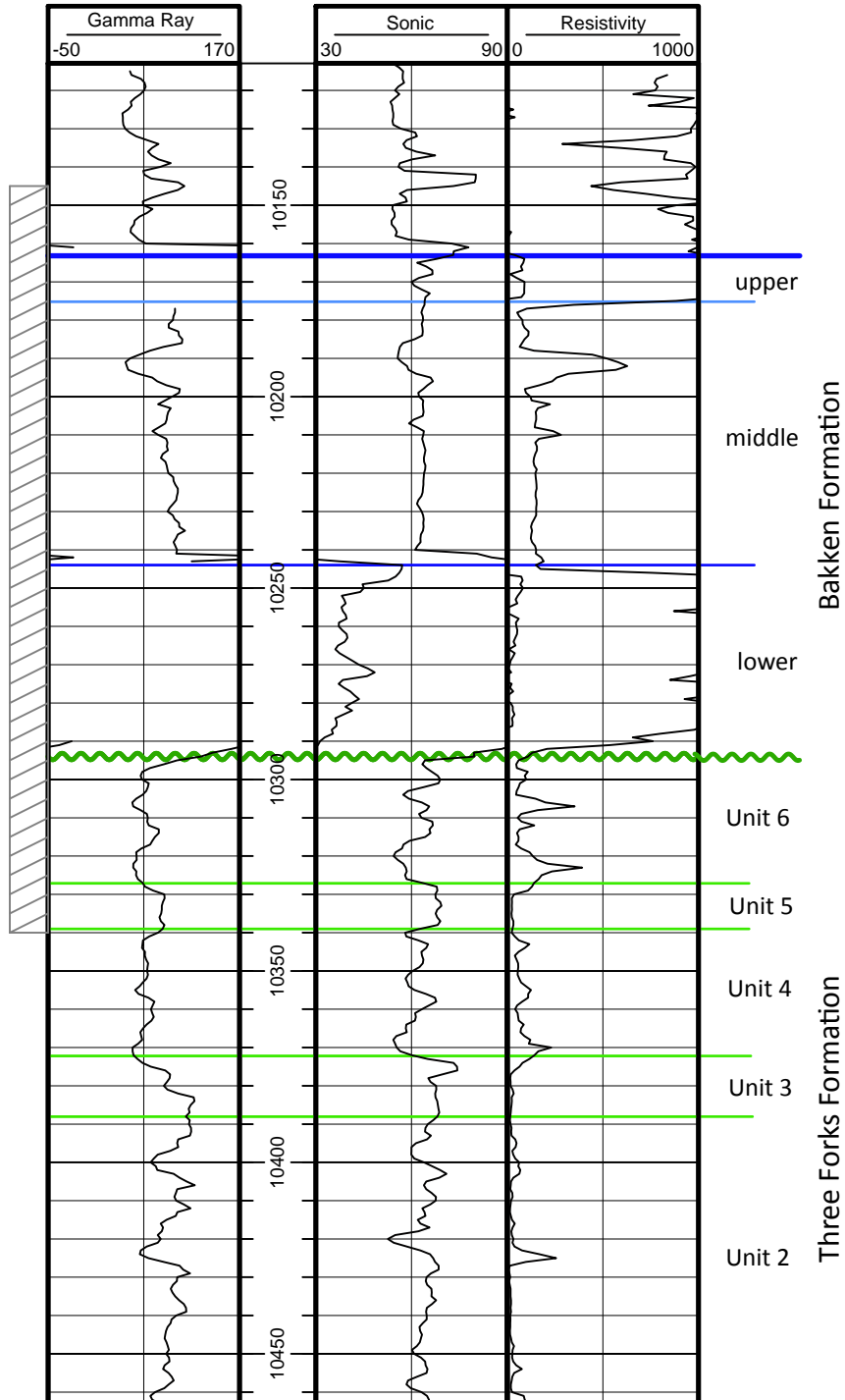


Workshop Cores

	Well	Cored Interval
1	NENW Sec. 35, T156N, R93W Shell Oil Company - #21-35 L. Texel	10167-10246
2	NWNW Sec. 28, T155N, R92W Brigham Oil & Gas, L.P. - #28-1H Anderson	10061-10124
3	NESE Sec 28, T154N, R92W Fidelity Exploration & Production Co. – #43-28H Deadwood Canyon Ranch	10077-10147
4	NWNW Sec. 11. T153N, R91W Whiting Oil and Gas Corporation - #11-11H Braaflat	9872-9933
5	Lot 3, Sec. 5, T152N, R90W EOG Resources, Inc. - #1-05H N&D	9421 - 9471
6	SESE Sec. 12, T151N, R90W EOG Resources, Inc. - #1-12H Fertile	9365 - 9405



33-061-00187-0000
#5088
NENW Sec. 35, T156N, R93W
Shell Oil Company
#21-35 L. Texel
KB = 2409 ft.



Core + 2 = Log

NENW Sec. 35, T.156N., R. 93W.
Shell Oil Co.
#21-35 Shell-Texel

Cored Interval: 10167-10213.5 ft



NENW Sec. 35, T.156N., R. 93W.
Shell Oil Co.
#21-35 Shell-Textel

Cored Interval: 10213.5 - 10246 ft



33-061-00765-0000

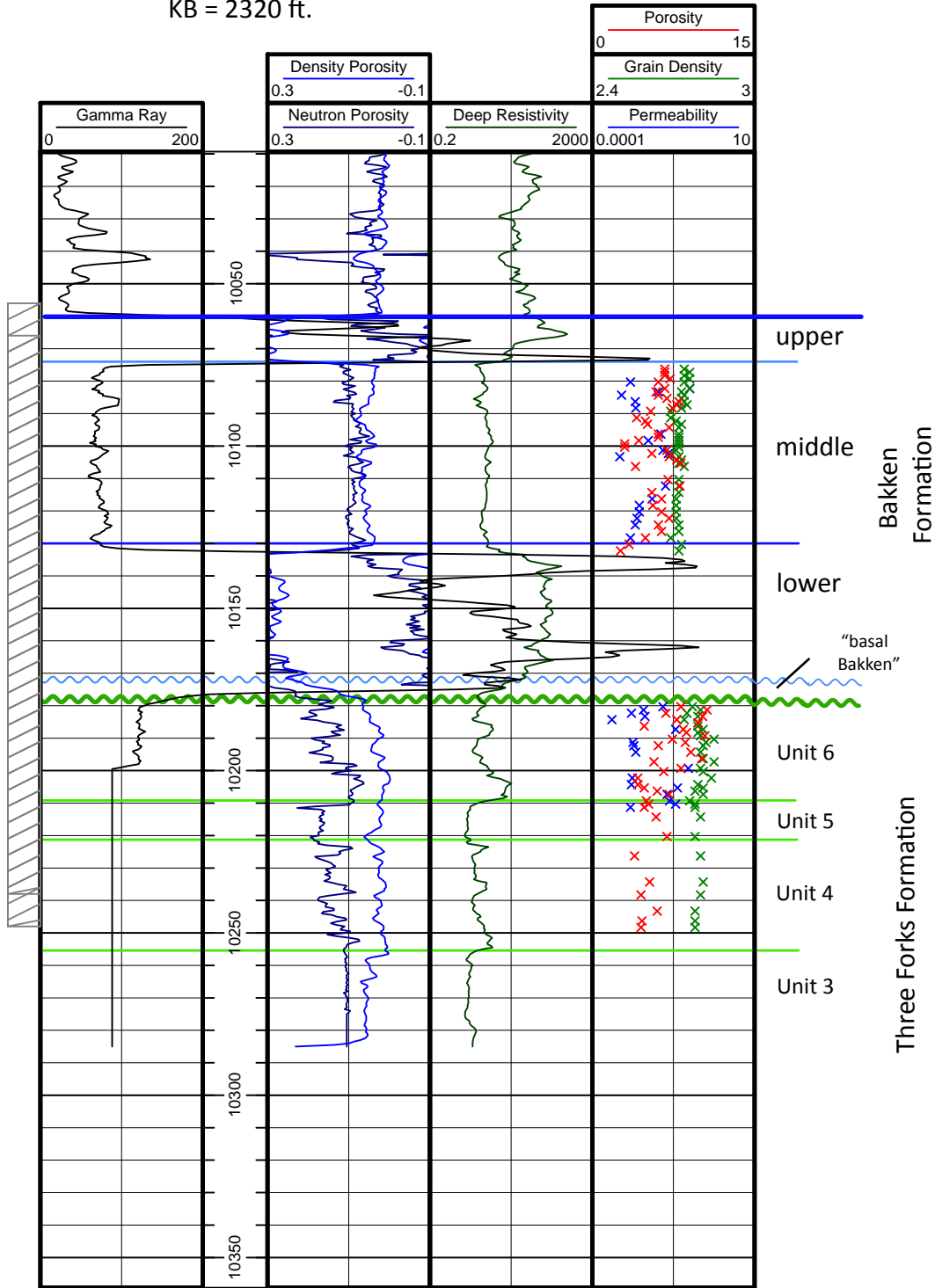
#17351

NWNW Sec. 28, T155N, R92W

Brigham Oil & Gas, L.P.

#28-1H Anderson

KB = 2320 ft.



Core + 10 = Log

Cored Interval: 10061 - 11095.5 ft

NWNW Sec. 28, T.155N., R92W.

Brigham Oil & Gas, L.P.

#28 1-H Anderson



NWNW Sec. 28, T.155N., R92W.
Brigham Oil & Gas, L.P.
#28 1-H Anderson

Cored Interval: 11095.5 - 10124 ft



33-061-00581-0000

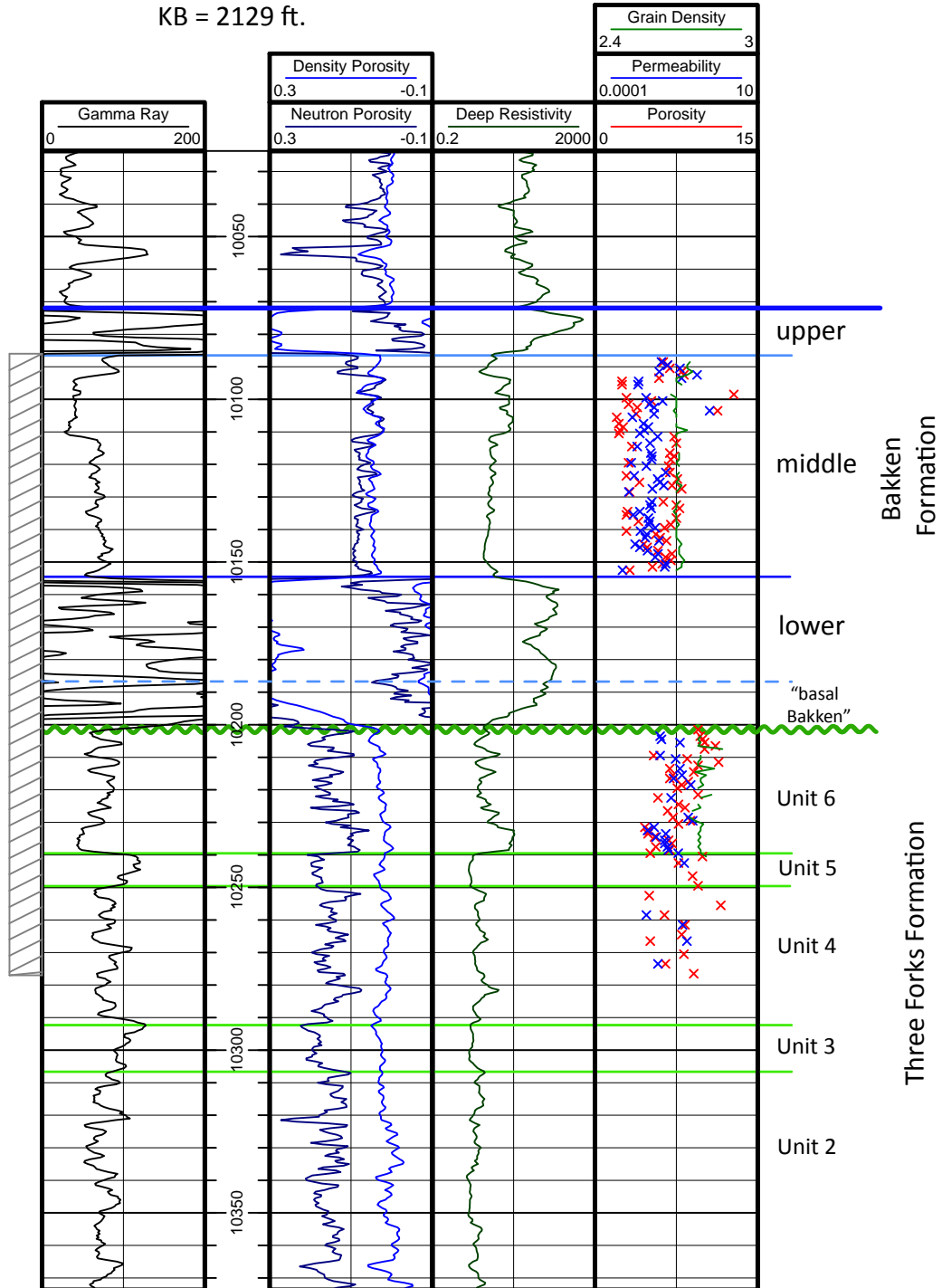
#16841

NESE Sec 28, T154N, R92W

Fidelity Exploration & Production Co.

#43-28H Deadwood Canyon Ranch

KB = 2129 ft.



Core + 9 = Log

Cored Interval: 10077 - 10110 ft

NESE Sec 28., T.154N., R.92W.
Fidelity Exploration & Production Company
#43-28H Deadwood Canyon Ranch



Cored Interval: 10110 - 10147 ft

NESE Sec 28., T.154N., R.92W.
Fidelity Exploration & Production Company
#43-28H Deadwood Canyon Ranch



33-061-00641-0000

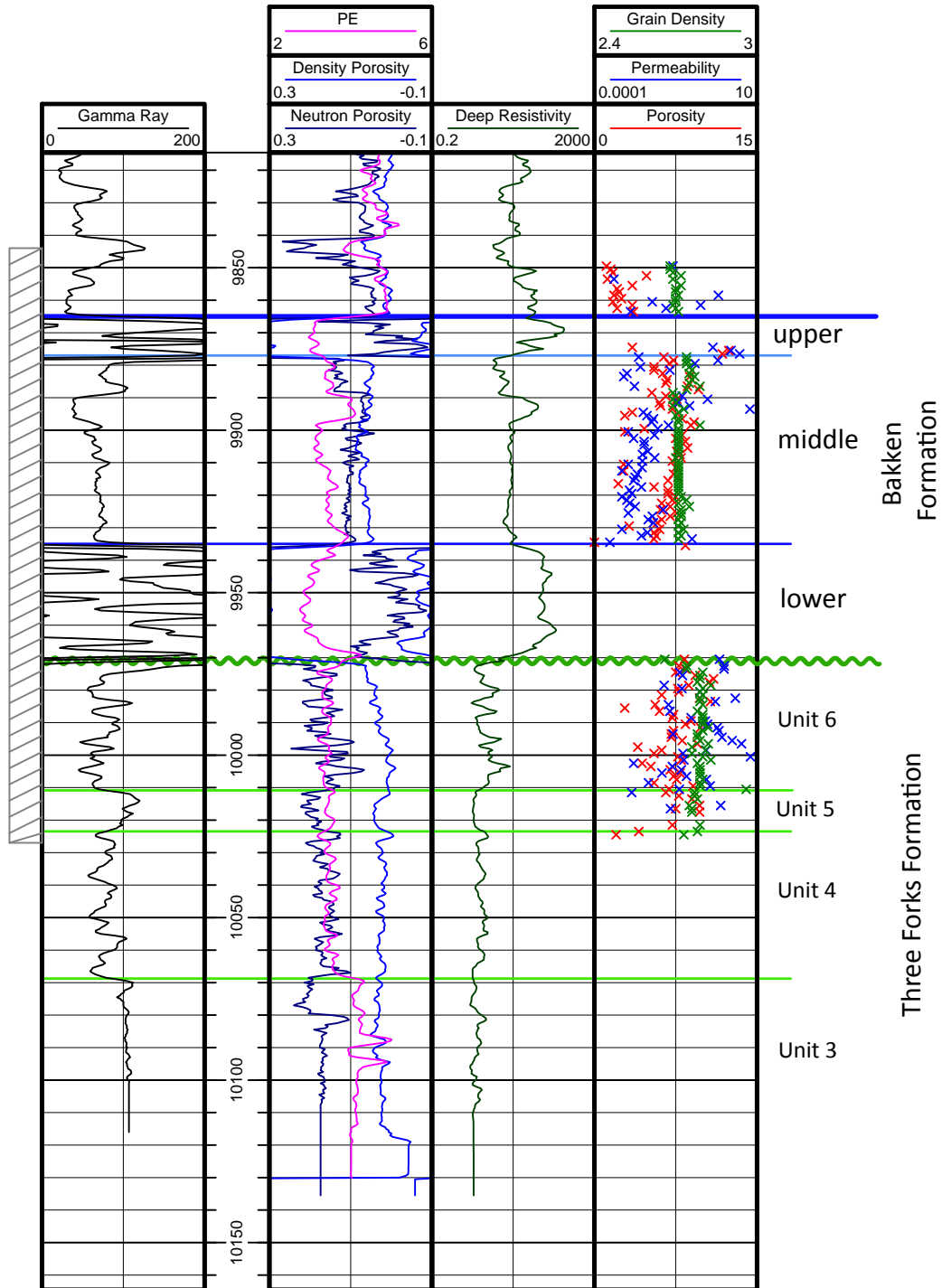
#17023

NWNW Sec. 11. T153N, R91W

Whiting Oil and Gas Corporation

#11-11H Braaflat

KB = 2299 ft



Core + 4 = Log

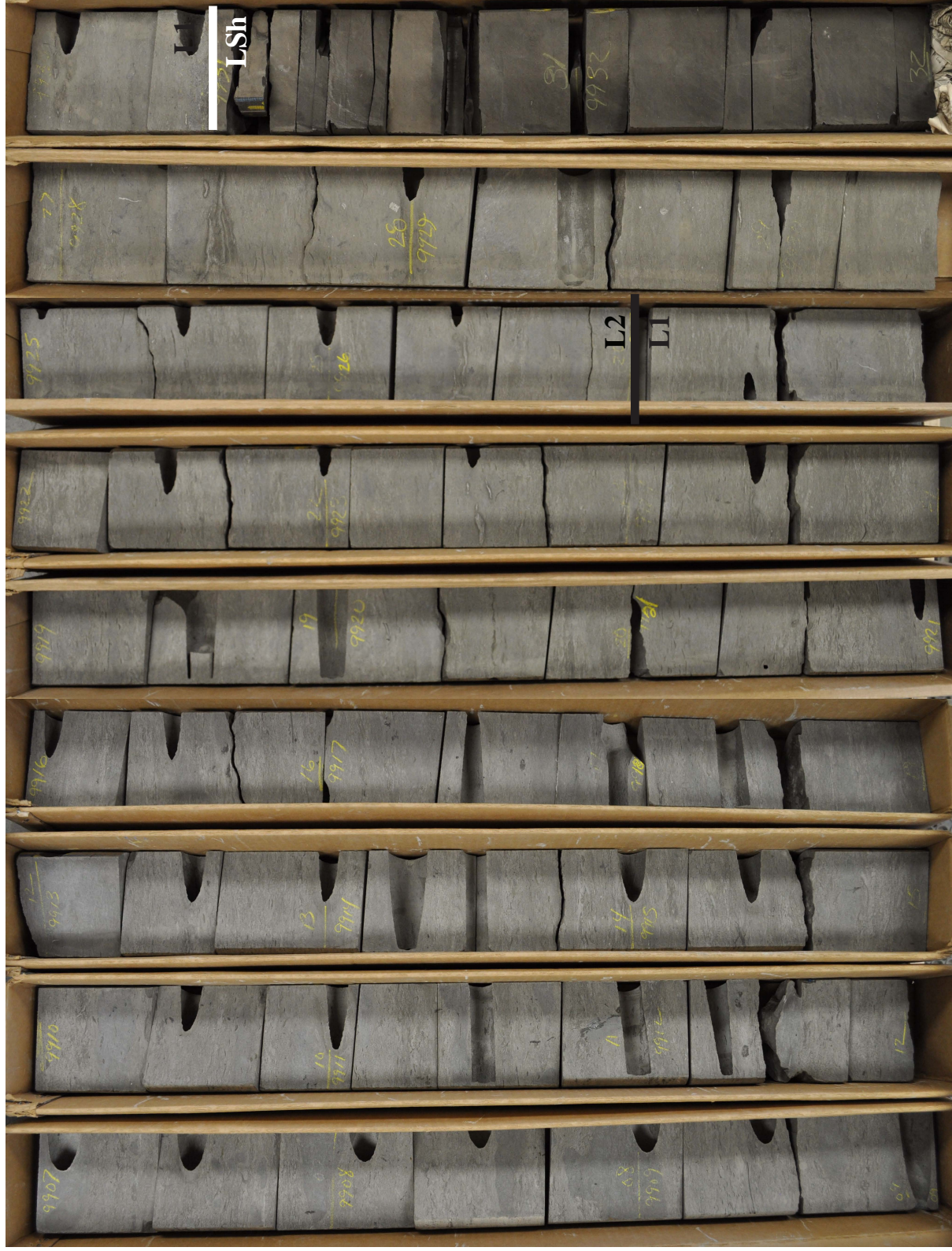
NWNW Sec. 11, T.153N., R91W.
Whiting Oil and Gas Corporation
#11-11H Braaflat

Cored Interval: 9872 - 9907 ft



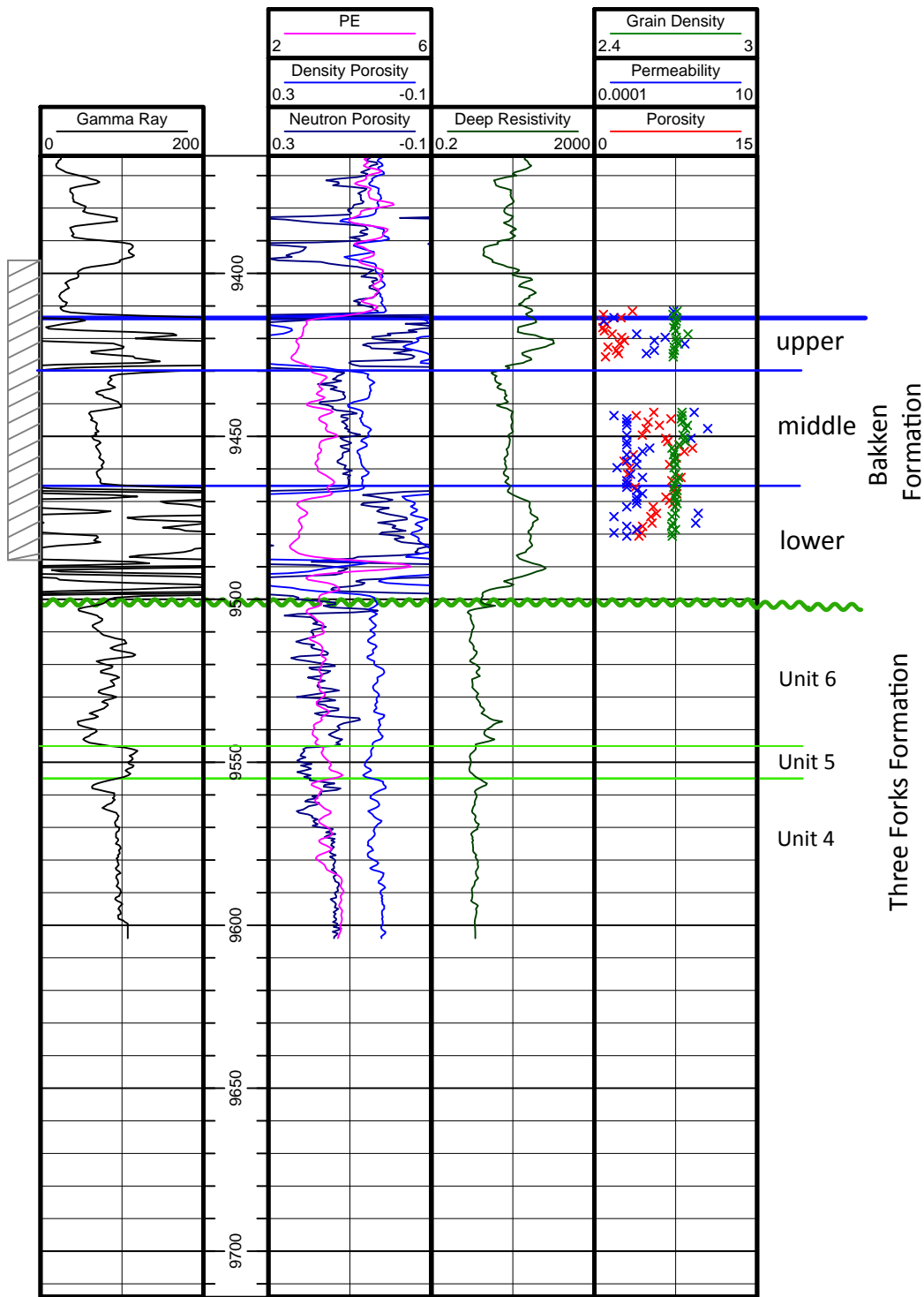
NWNW Sec. 11, T.153N., R91W.
Whiting Oil and Gas Corporation
#11-11H Braaflat

Cored Interval: 9907 - 9933 ft





33-061-00521-0000
#16532
Lot 3, Sec. 5, T152N, R90W
EOG Resources, Inc.
#1-05H N&D
KB = 2081 ft.



Core + 4 = Log

Lot 3 Sec 5, T.152N., R. 90W.
EOG Resources, Inc.
#1-05H N&D

Cored Interval: 9421.5-9446



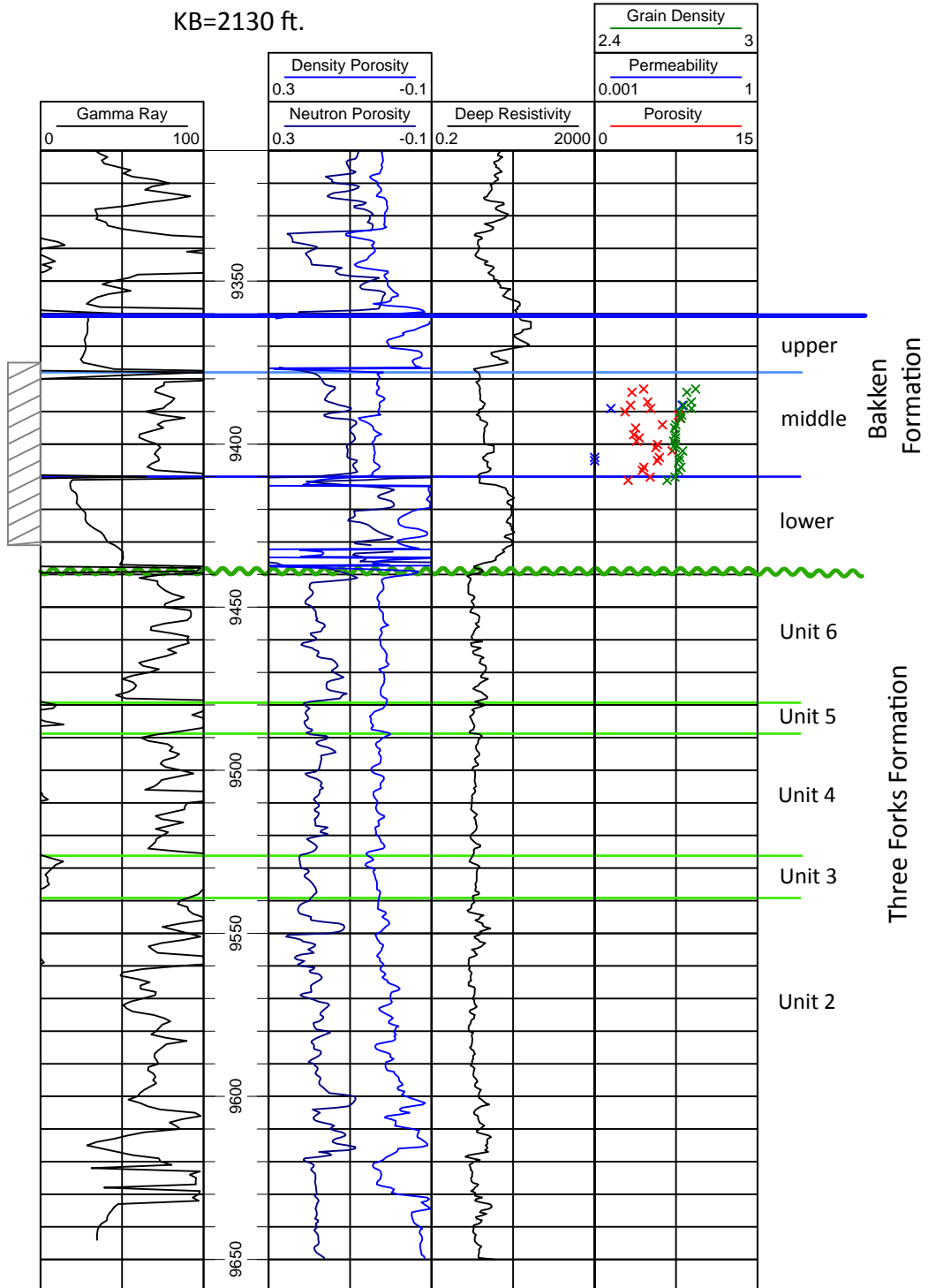
Lot 3 Sec. 5, T.152N., R. 90W.
EOG Resources, Inc.
#1-05H N&D

Cored Interval: 9446-9471





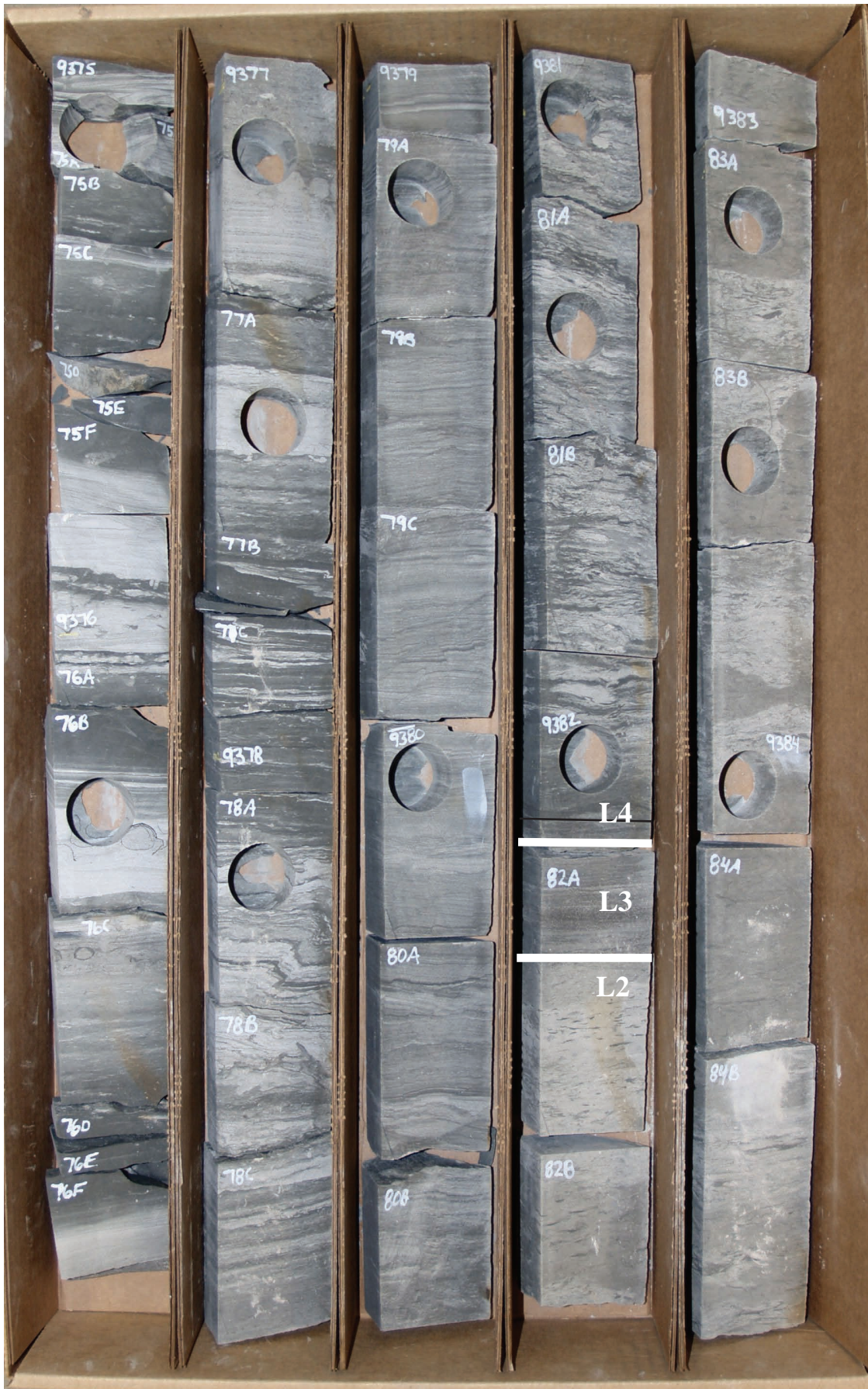
33061005570000
#16743
SESE Sec. 12, T151N, R90W
EOG Resources, Inc.
#1-12H Fertile
KB=2130 ft.



Core + 10 = Log

SESE Sec. 12, T.151N., R. 90W.
EOG Resources, Inc.
#1-12H Fertile

Cored Interval: 9375-9385



SESE Sec. 12, T.151N., R. 90W.
EOG Resources, Inc.
#1-12H Fertile

Cored Interval: 9385-9395



SESE Sec. 12, T.151N., R. 90W.
EOG Resources, Inc.
#1-12H Fertile

Cored Interval: 9395-9405





Workshop Cores

	Well	Cored Interval
1	NWNW Sec. 10, T154N, R102W Brigham Oil & Gas, L.P. - #10-15-1-H Olson	10609 – 10730.5
2	NESW Sec. 14, T149N, R100W Whiting Oil & Gas Corporation - #23-14 Curl	11033 – 11096
3	NWNE Sec. 12, T146N, R99W American Hunter Exploration Ltd. – #12-31 H3 AHSL et al Grassey Butte	11284 – 11330
4	SWSW Sec. 5, T143N, R99W Texaco, Inc. - #5-1 Texaco Thompson Unit	11031 – 11089
5	SWNE Sec. 34, T141N, R100W Florida Exploration Company - #34-1 Federal	10497 – 10540
6	NWNW Sec. 9, T142N, R97W Ansbros Petroleum Company, LLC - #1-9 Griggs	10630 – 10689
7	SESW Sec. 14, T141N, R96W Anschutz Exploration Corp. - #24-14H Sadowsky	10450 – 10538

33-105-01693-0000

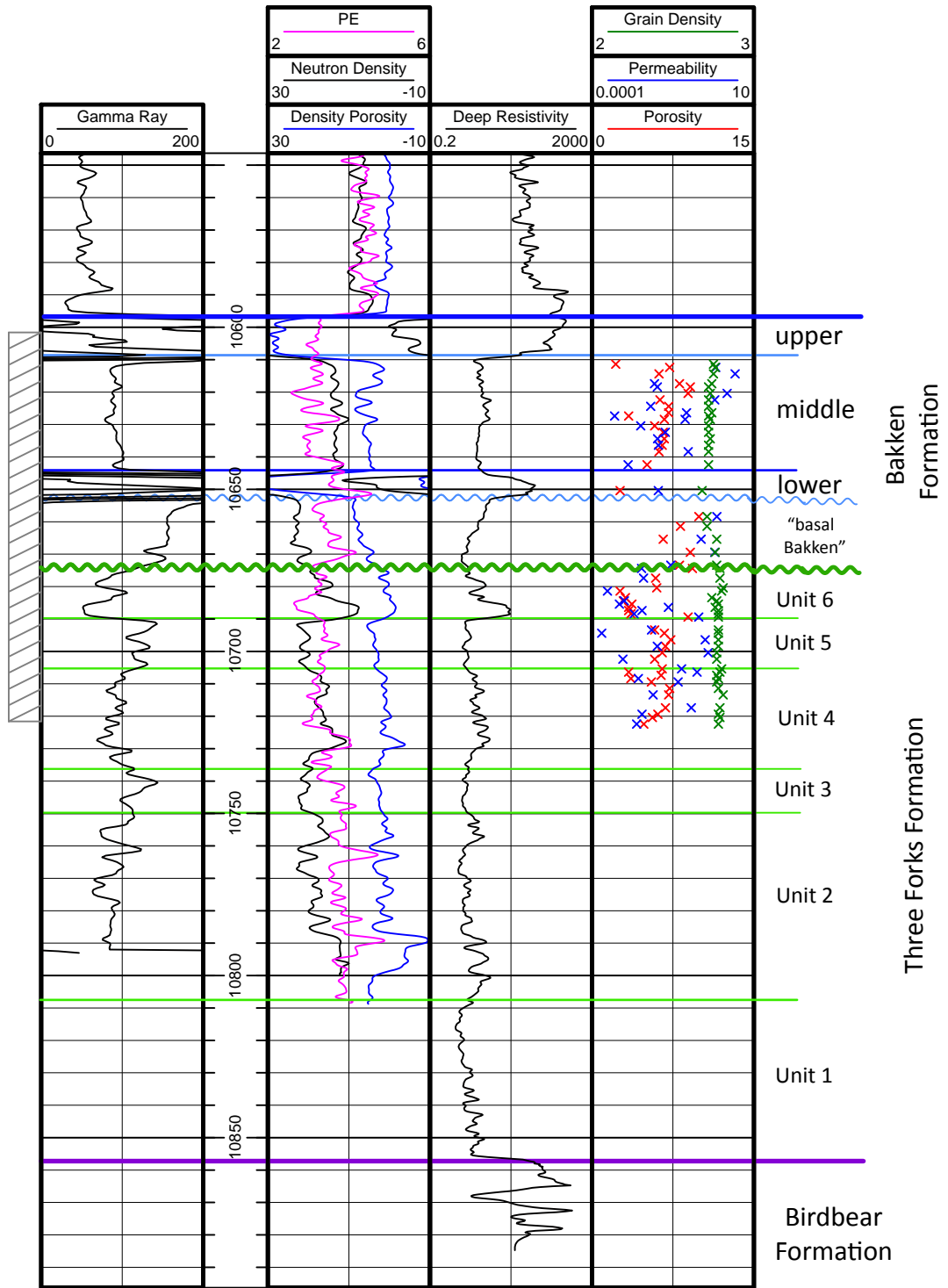
#17513

NWNW Sec. 10, T154N, R102W

Brigham Oil & Gas, L.P.

#10-15-1-H Olson

KB=2183 ft.



Core + 7.4 = Log

NWNW Sec. 10, T.154N., R.102W.
Brigham Oil & Gas, L.P.
#10-15-1-H Olson

Cored Interval: 10609 - 10643 ft



NWNW Sec. 10, T.154N., R.102W.
Brigham Oil & Gas, L.P.
#10-15-1-H Olson

Cored Interval: 10642.75 - 10676 ft



NWNW Sec. 10, T.154N., R.102W.
Brigham Oil & Gas, L.P.
#10-15-1-H Olson

Cored Interval: 10676 - 10709 ft



NWNW Sec. 10, T.154N., R.102W.
Brigham Oil & Gas, L.P.
#10-15-1-H Olson

Cored Interval: 10709 - 10730.5 ft





33-053-02794-0000

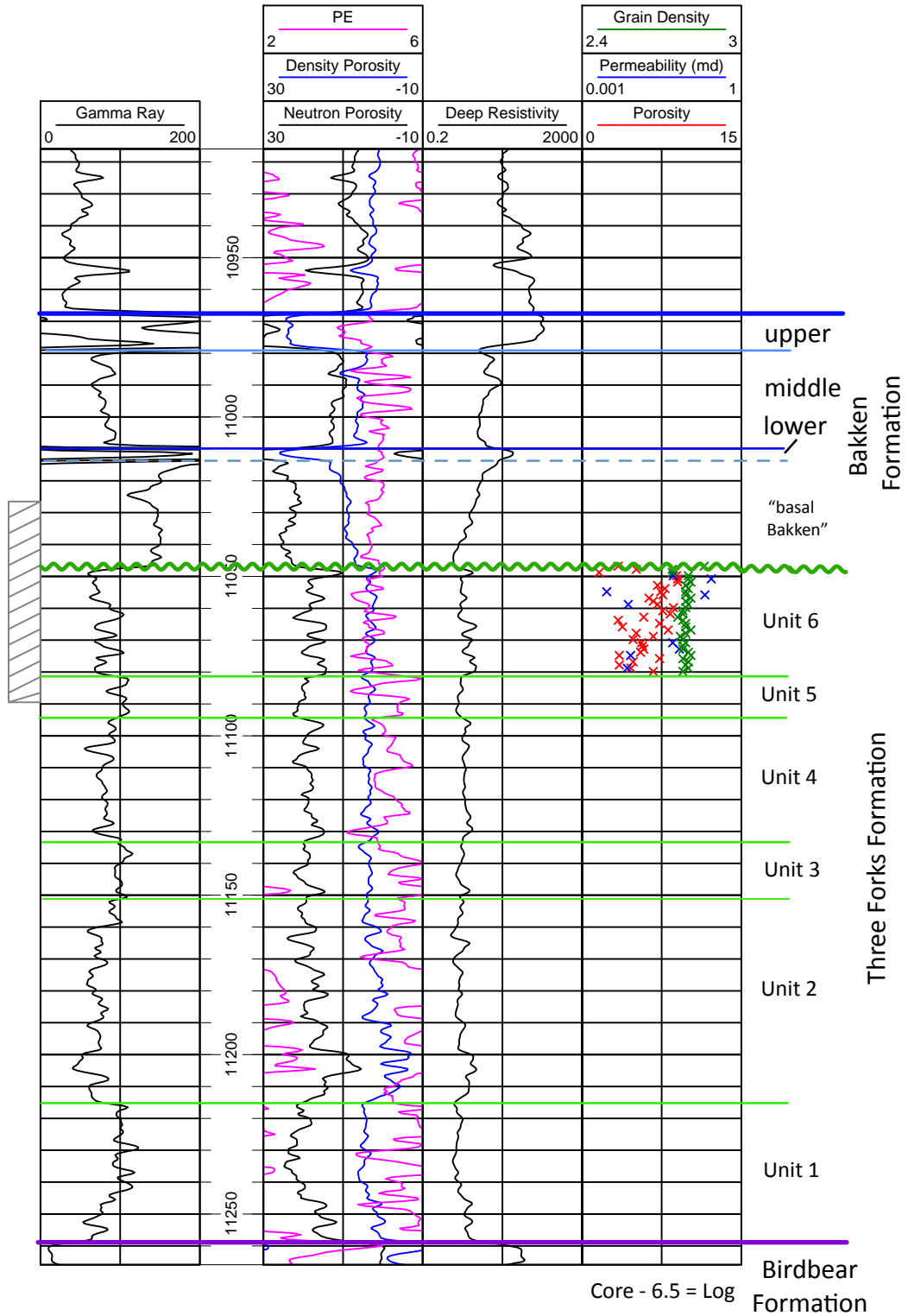
#16581

NESW Sec. 14, T149N, R100W

Whiting Oil & Gas Corporation

#23-14 Curl

KB=2255 ft.



NESW Sec. 14, T.149N., R.100W.
Whiting Oil and Gas Corporation
#23-14 Curl

Cored Interval: 11033 - 10066.5 ft



NESW Sec. 14, T.149N., R.100W.
Whiting Oil and Gas Corporation
#23-14 Curl

Cored Interval: 11066.5 - 11096 ft





33-053-02308-0000

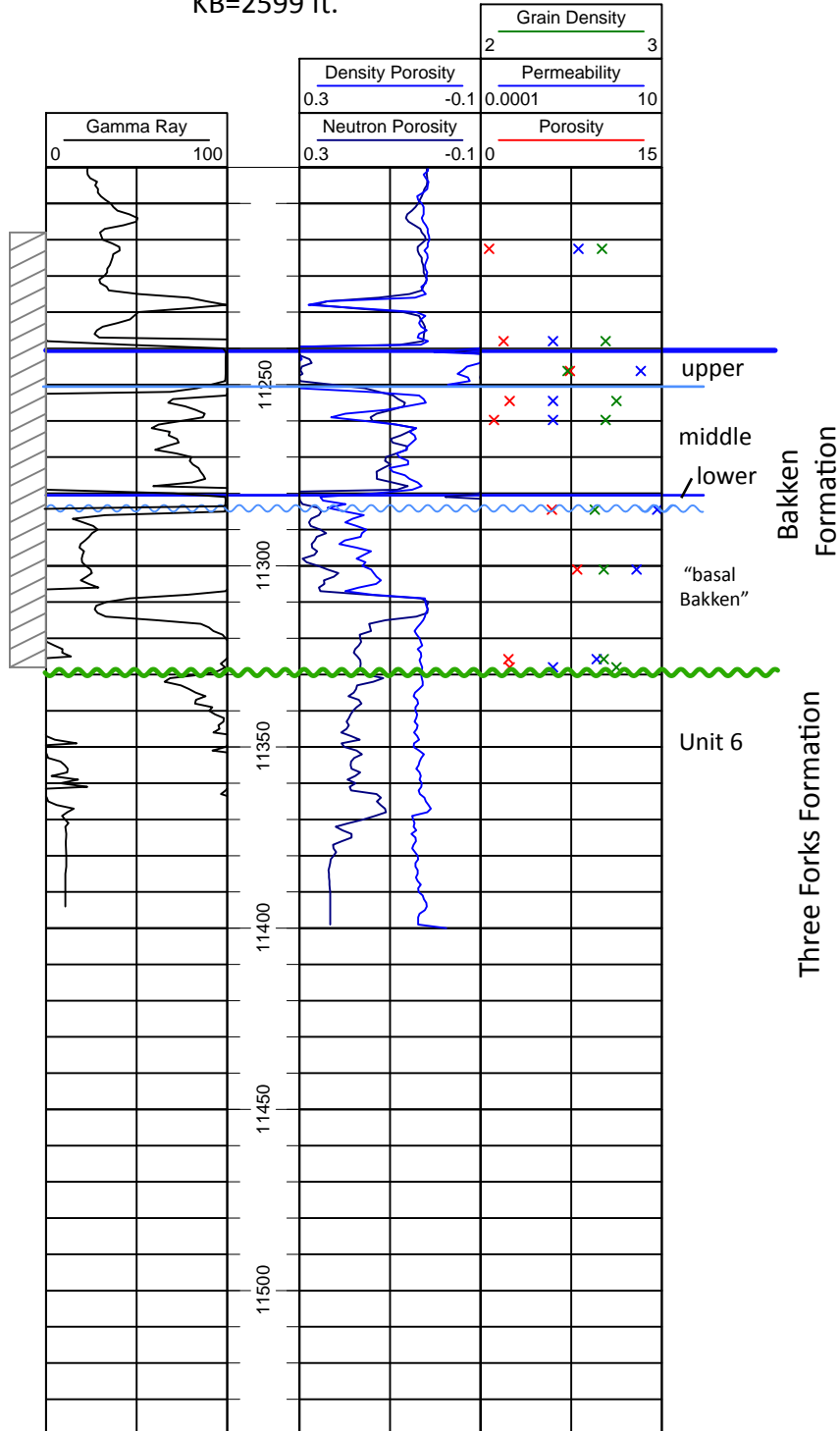
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NWNE Sec. 12, T146N, R99W

American Hunter Exploration Ltd.

#12-31 H3 AHEL et al Grassey Butte

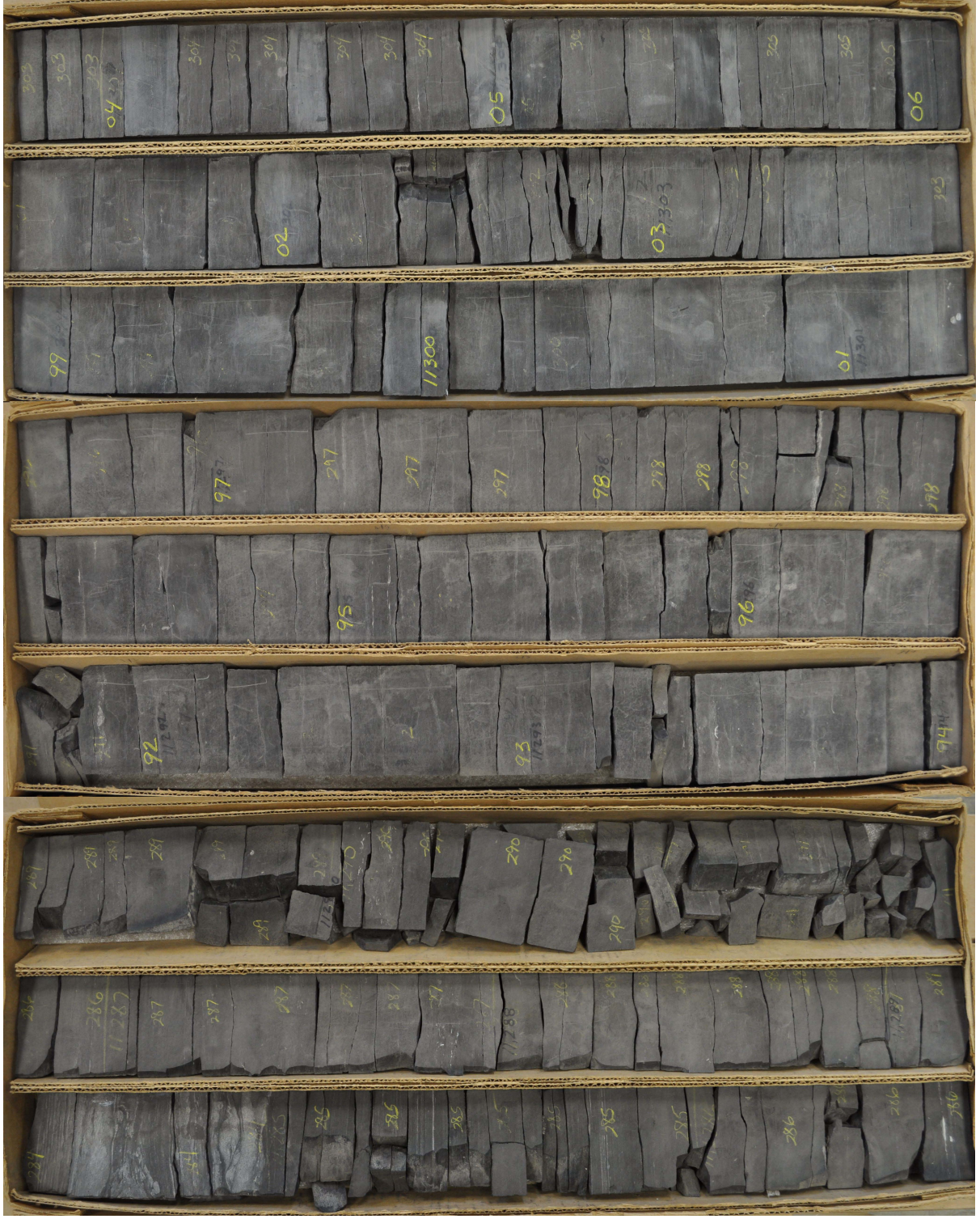
KB=2599 ft.



Core -2 = Log

NWNE Sec. 12, T.146N, R.99W
American Hunter Exploration Ltd.
#12-31 H3 AHSL et al Grassey Butte

Cored Interval: 11284 - 11306 ft.



NWNE Sec. 12, T.146N, R.99W
American Hunter Exploration Ltd.
#12-31 H3 AH EL et al Grassey Butte

Cored Interval: 11306- 11330 ft.





33-007-01185-0000

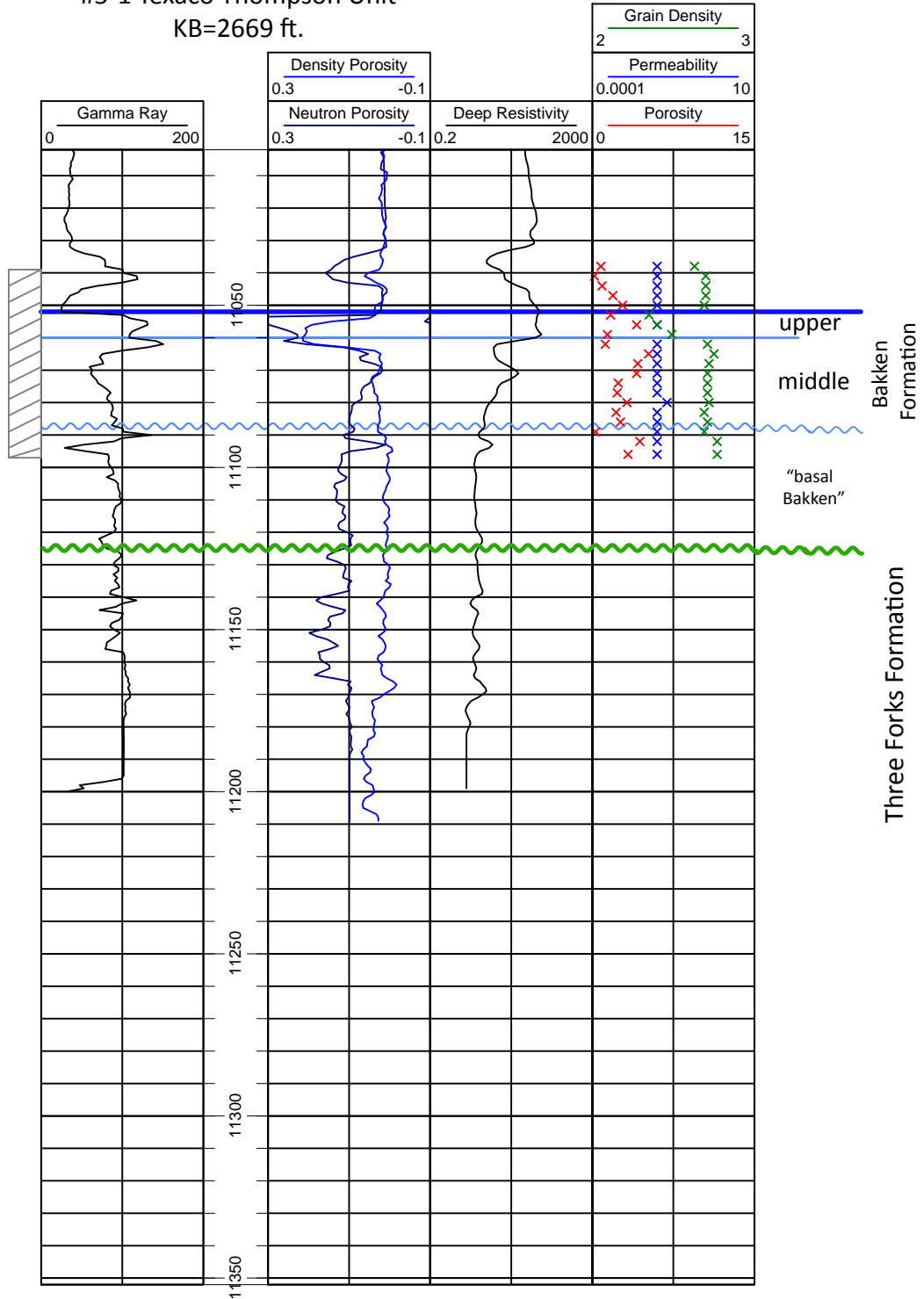
#12748

SWSW Sec. 5, T143N, R99W

Texaco, Inc.

#5-1 Texaco Thompson Unit

KB=2669 ft.



Core + 8 = Log

SWSW Sec. 5, T.143N., R.99W.
Texaco, Inc.

Cored Interval: 11031-11051.75

#5-1 Texaco Thompson Unit



SWSW Sec. 5, T.143N., R.99W.
Texaco, Inc.

#5-1 Texaco Thompson Unit

Cored Interval: 11051.75 - 11070.5



SWSW Sec. 5, T.143N., R.99W.
Texaco, Inc.

#5-1 Texaco Thompson Unit

Cored Interval: 11070.5 - 11089





33007009970000

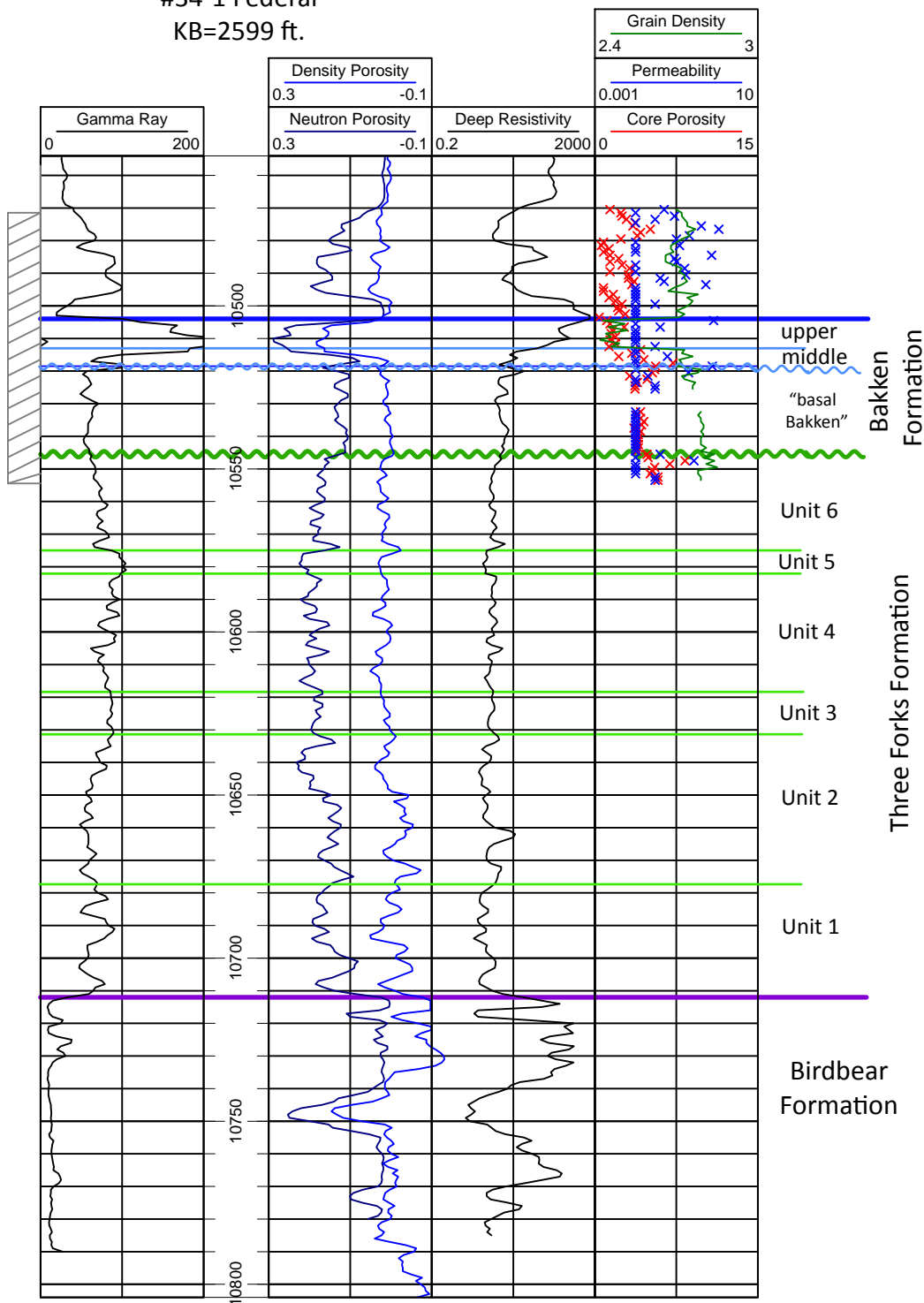
#17513

SWNE Sec. 34, T141N, R100W

Florida Exploration Company

#34-1 Federal

KB=2599 ft.



Core + 7.4 = Log

SWNE Sec. 34, T.141N., R100W.
Florida Exploration Company
#34-1 Federal

Cored Interval: 10528 - 10540 ft



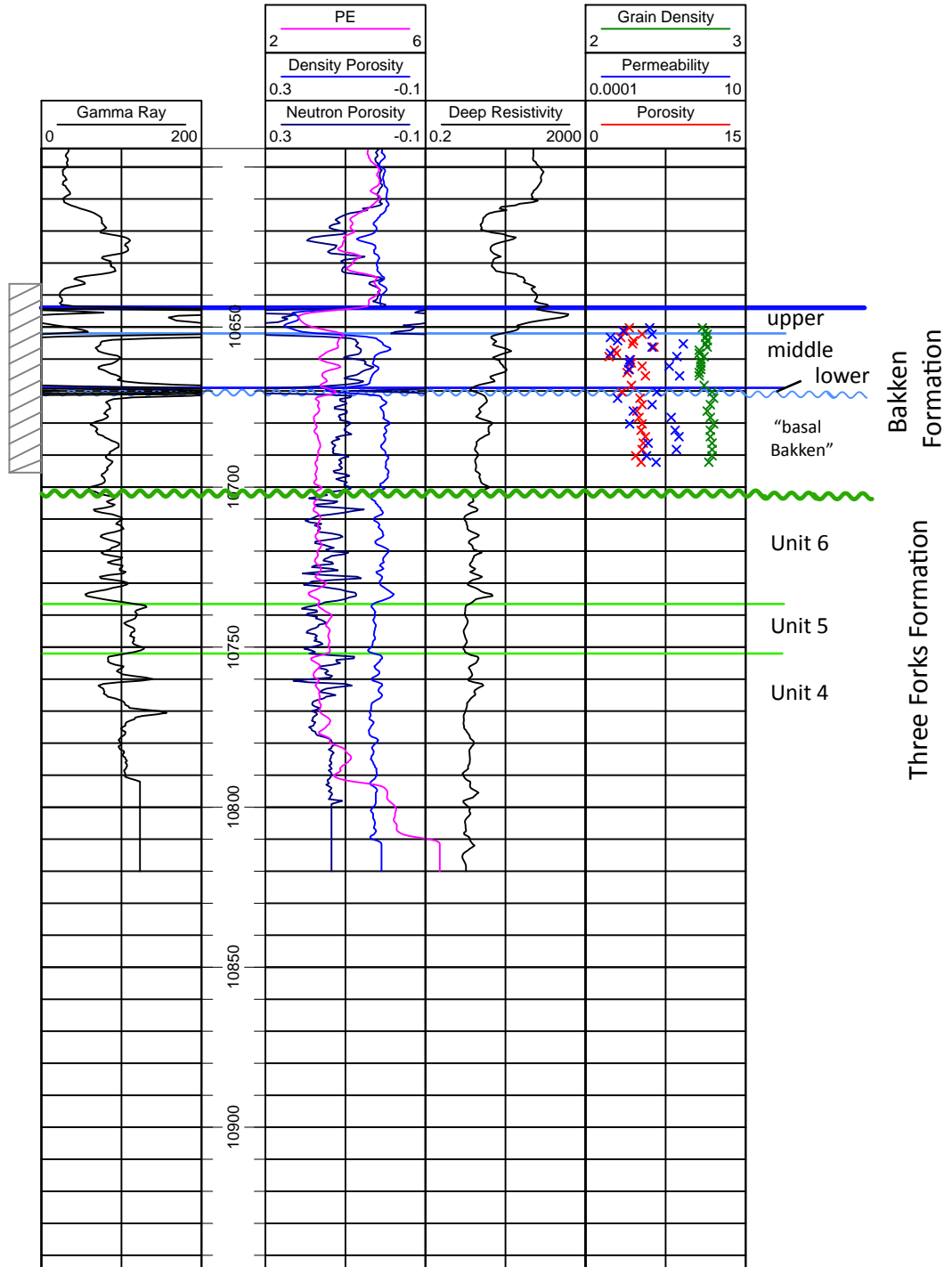
33-025-00612-0000

#16466

NWNW Sec. 9, T142N, R97W
Ansbro Petroleum Company, LLC

#1-9 Griggs

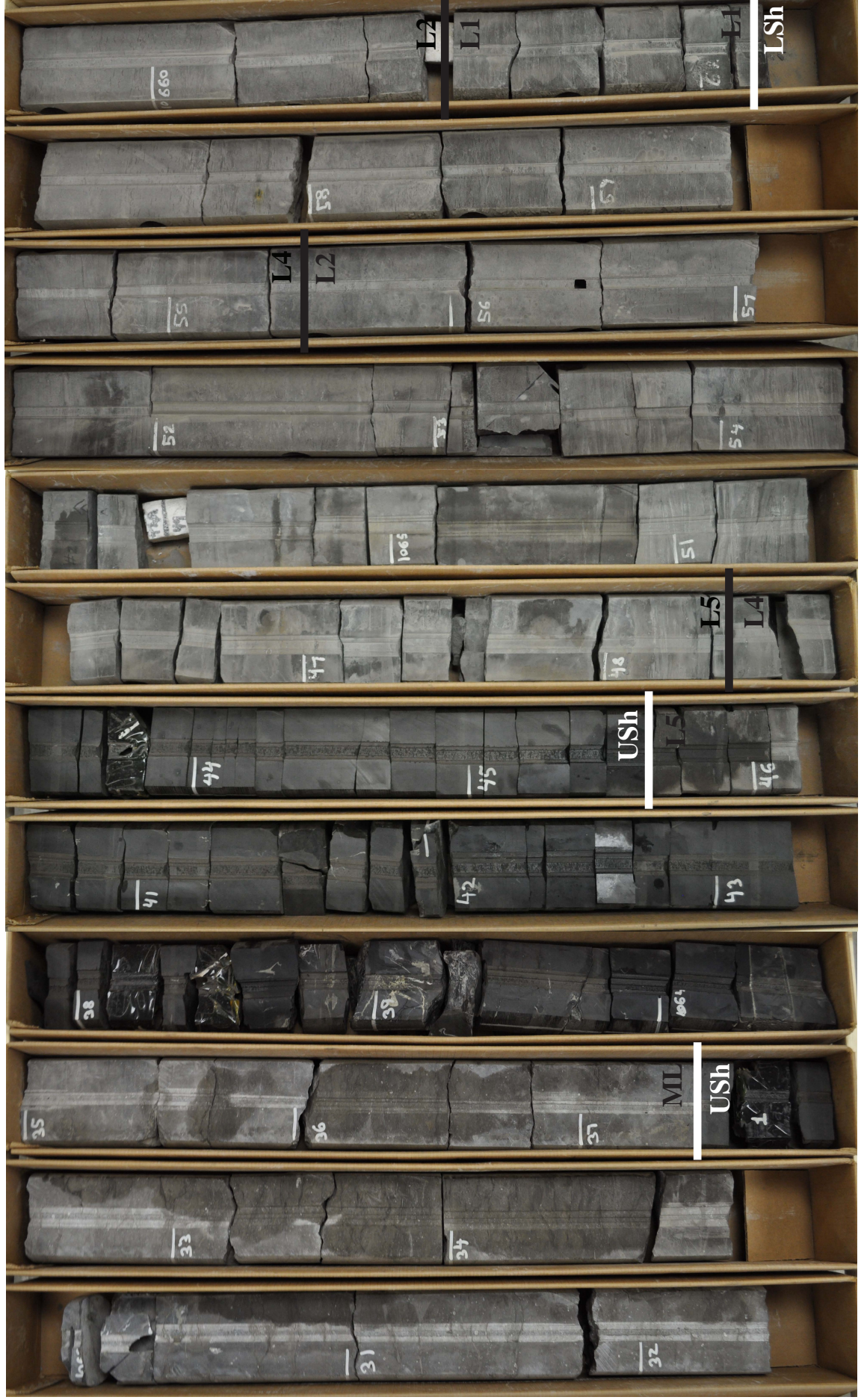
KB=2485 ft.



Core + 5.9 = Log

Cored Interval: 10630 - 10662

NWNW Sec. 9, T.142N., R.97W.
Ansbro Petroleum Company, LLC
#1-9 Griggs



NWNW Sec. 9, T.142N., R.97W.
Ansbro Petroleum Company, LLC
#1-9 Griggs

Cored Interval: 10662 - 10689



LSh

33-025-00868-0000

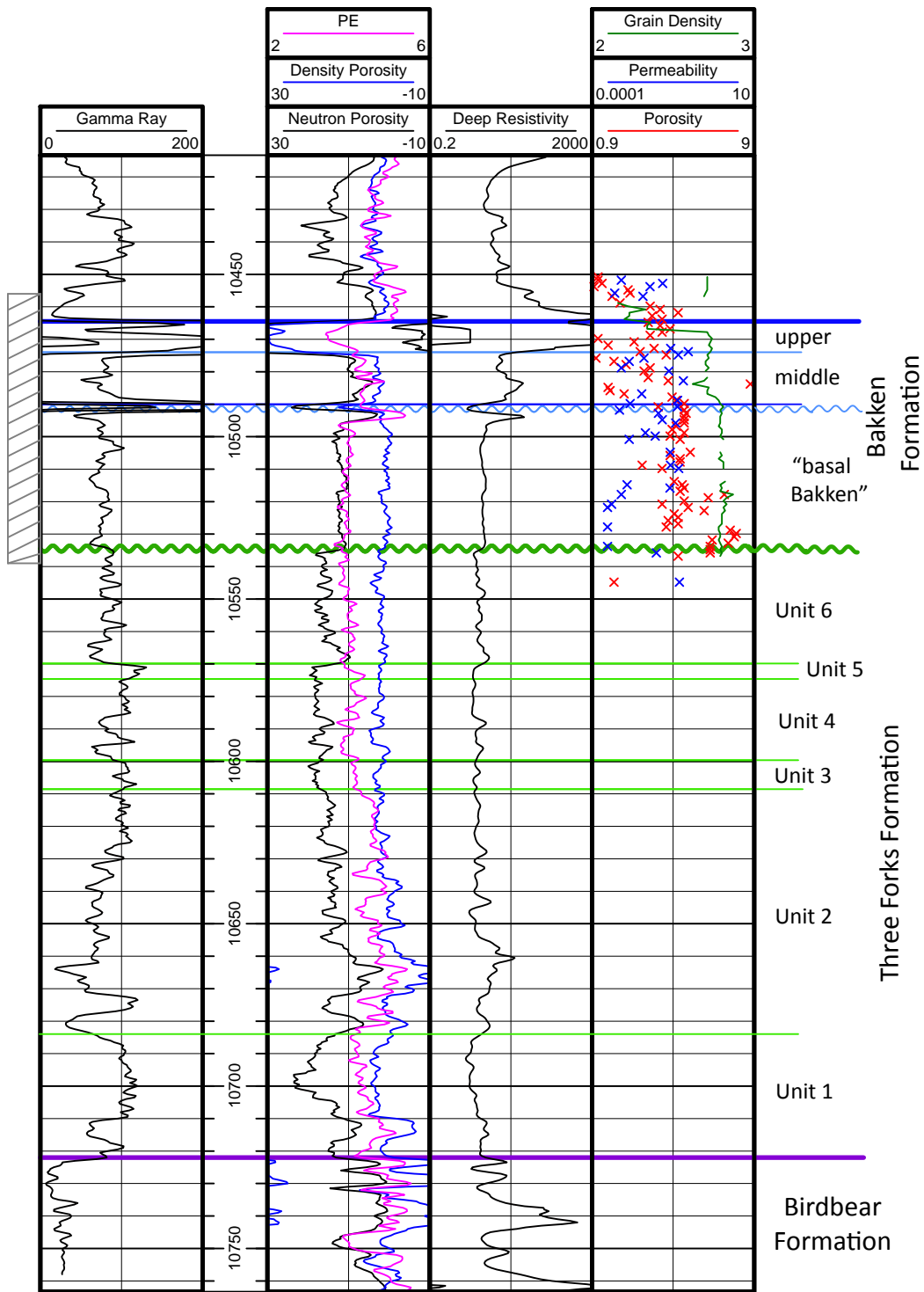
#17808

SESW Sec. 14, T141N, R96W

Anschutz Exploration Corp.

#24-14H Sadowsky

KB = 2569 ft.



Core + 5.9 = Log

SESW Sec. 14, T.141N., R.96W.
Anschutz Exploration Corporation
#24-14H Sadowsky

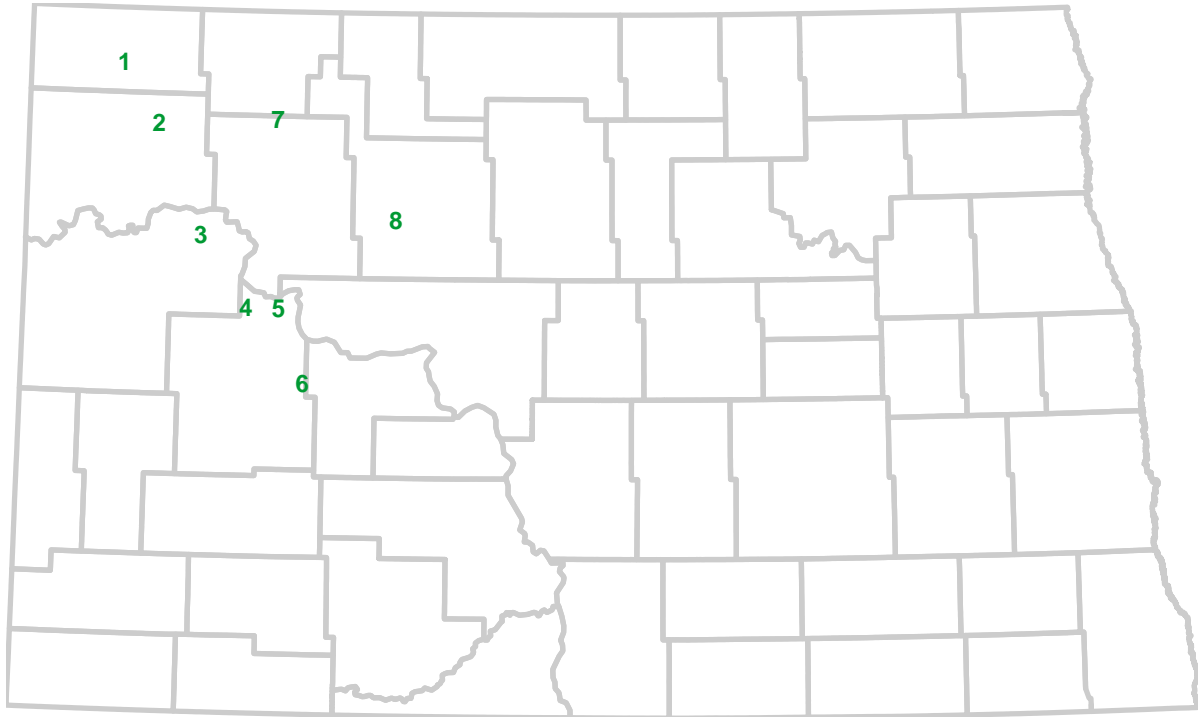
Cored Interval: 10484 - 10516.5 ft



Cored Interval: 10516.5 - 10538 ft

SESW Sec. 14, T.141N., R.96W.
Anschutz Exploration Corporation
#24-14H Sadowsky





Workshop Cores

	Well	Cored Interval
1	SESE Sec. 14, T161N, R98W Samson Resources Company - #14-23-161-98H Nordstog	8698 – 8737
2	SWSW Sec. 17, T158N, R96W Pogo Producing Company LLC - #2-17H Pegasus	10198 – 10249
3	SESE Sec. 36, T153N, R95W Burlington Resources Oil & Gas Company LP - #44-36 Washburn	10548 – 10665
4	SWNE Sec. 24, T149N, R93W Socony-Vacuum Oil Company, Inc. - #F32-24-P Angus Kennedy	10601 – 10661
5	SENE Sec. 22, T149N, R91W Mobil Producing Company – #F-22-22-1 Pegasus Div Solomon Bird Bear	9999 - 10275
6	SWSE Sec. 9, T145N, R90W XTO Energy, Inc. - #34X-9 Miller	9507 – 9591
7	SESE Sec 6, T158N, R90W EOG Resources, Inc. - #1-06H Sidonia	8790 – 8887.25
8	SWNE Sec. 2, T153N, R85W Stanolind Oil & Gas Company - #1 Walter & Ingeberg Waswick	7572 - 7612

33-023-00489-0000

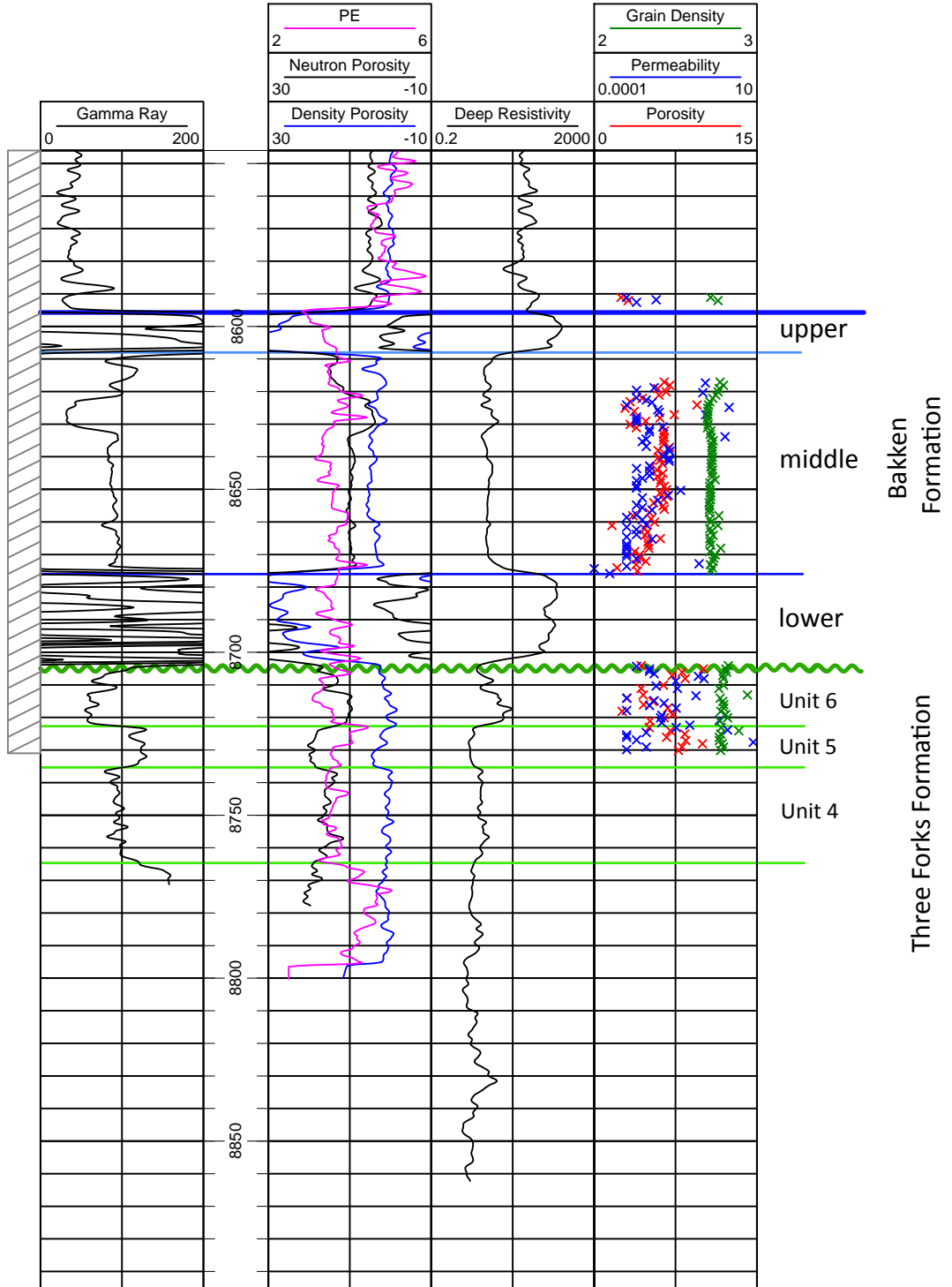
#16089

SESE Sec. 14, T161N, R98W

Samson Resources Company

#14-23-161-98H Nordstog

KB=2092 ft.



Core - 6 = Log

SESE Sec. 14, T.161N., R. 98W.
Samson Resources, Inc.
#14-23-161-98H Nordstog

Cored Interval: 8698-8718



SESE Sec. 14, T.161N., R. 98W.
Samson Resources, Inc.
#14-23-161-98H Nordstog

Cored Interval: 8718-8737



33-105-01598-0000

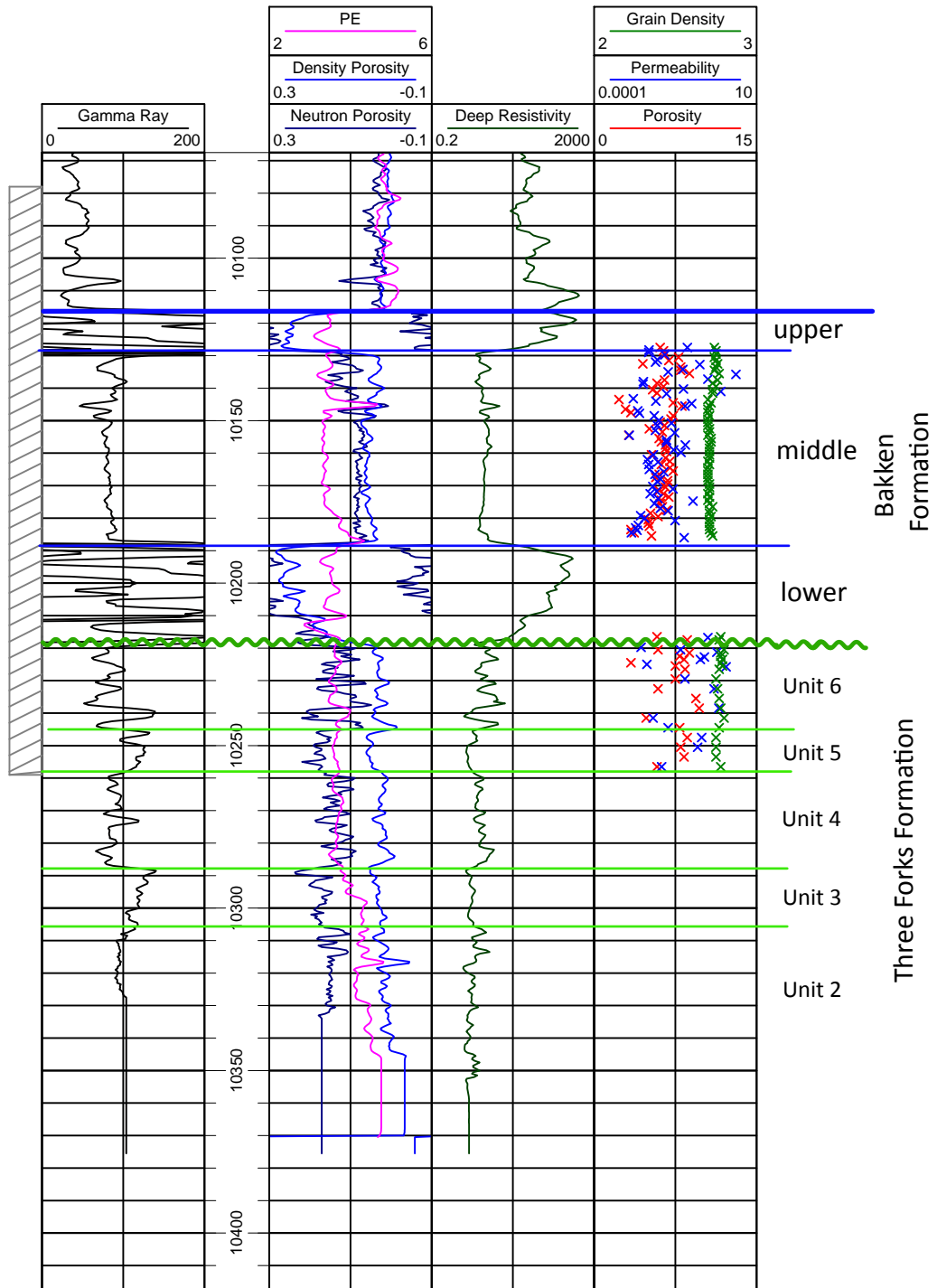
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SWSW Sec. 17, T158N, R96W

Pogo Producing Company LLC

#2-17H Pegasus

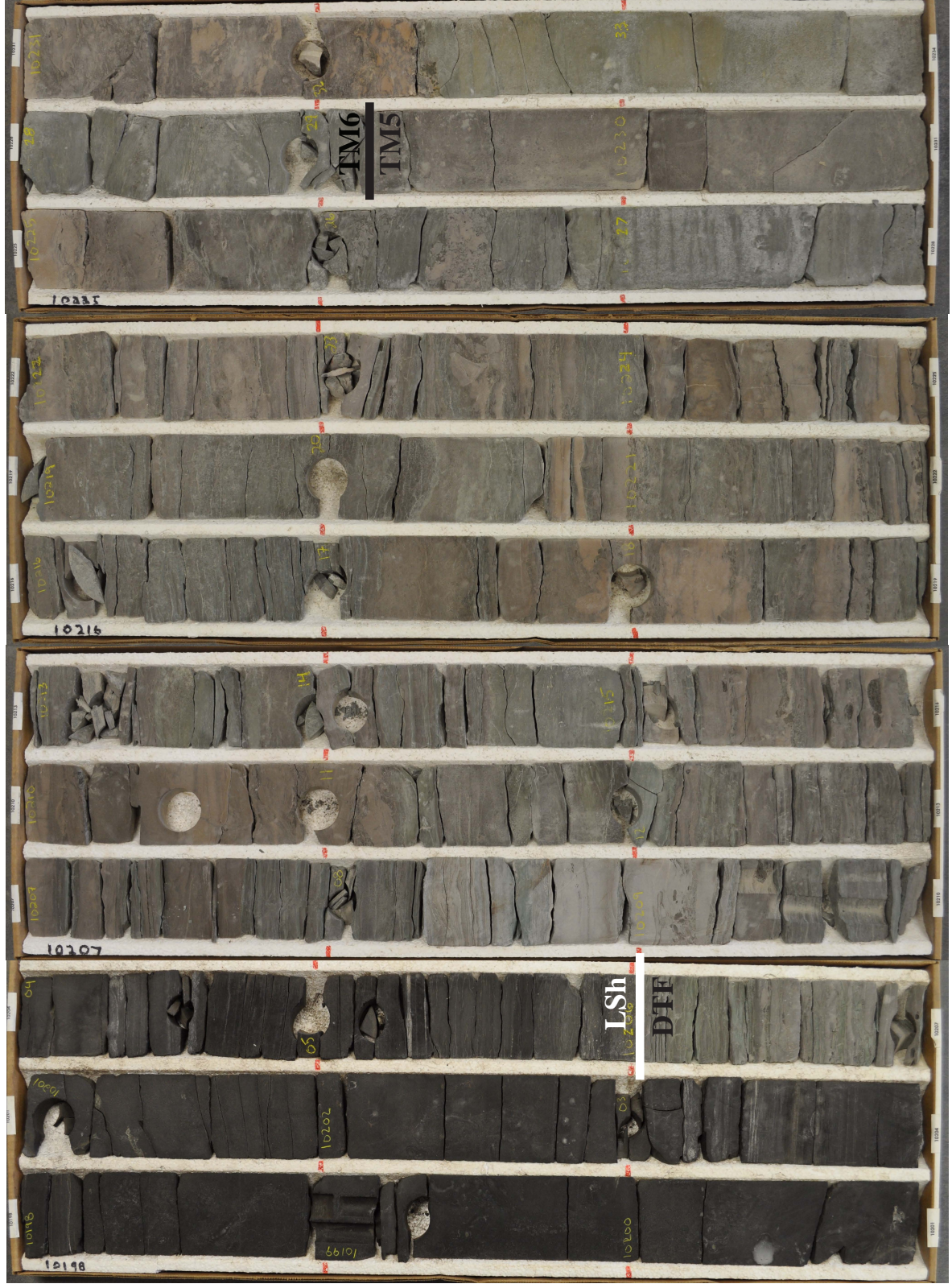
KB=2437 ft.



Core + 10 = Log

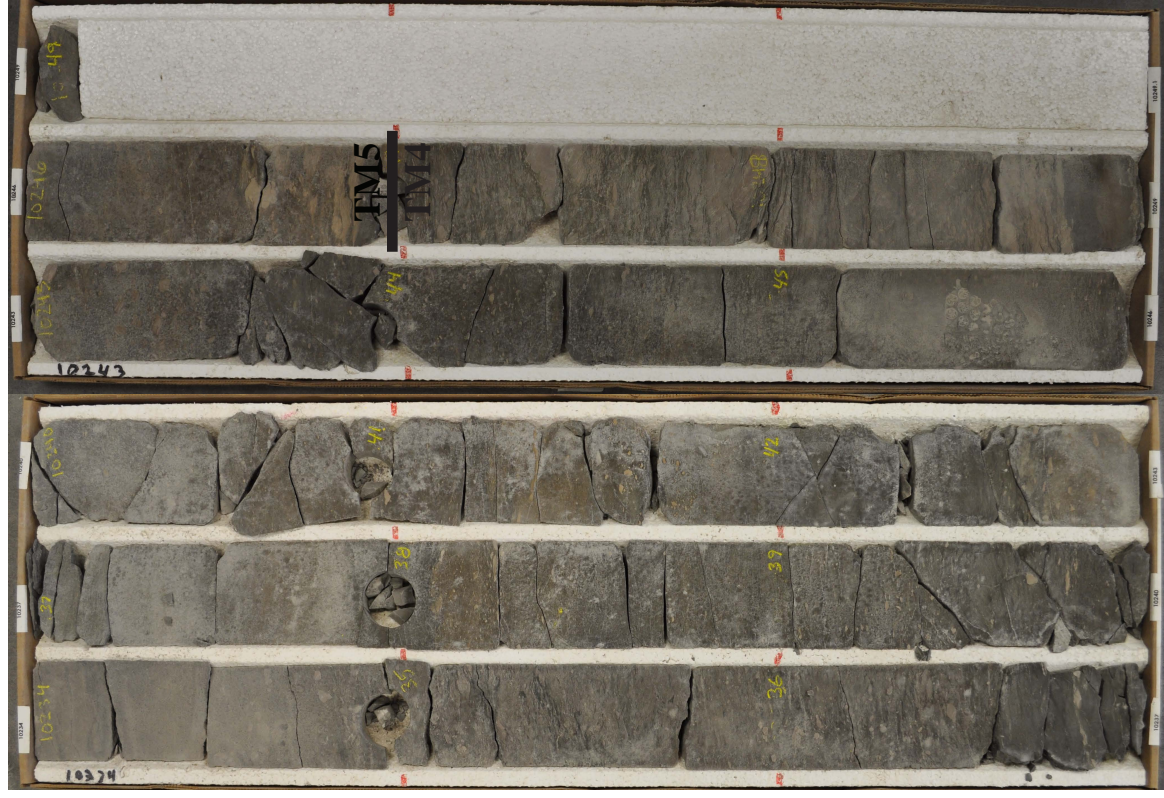
SWSW Sec. 17, T.158N., R96W.
Pogo Producing Company, LLC
#2-17H Pegasus

Cored Interval: 10198 - 10234 ft.



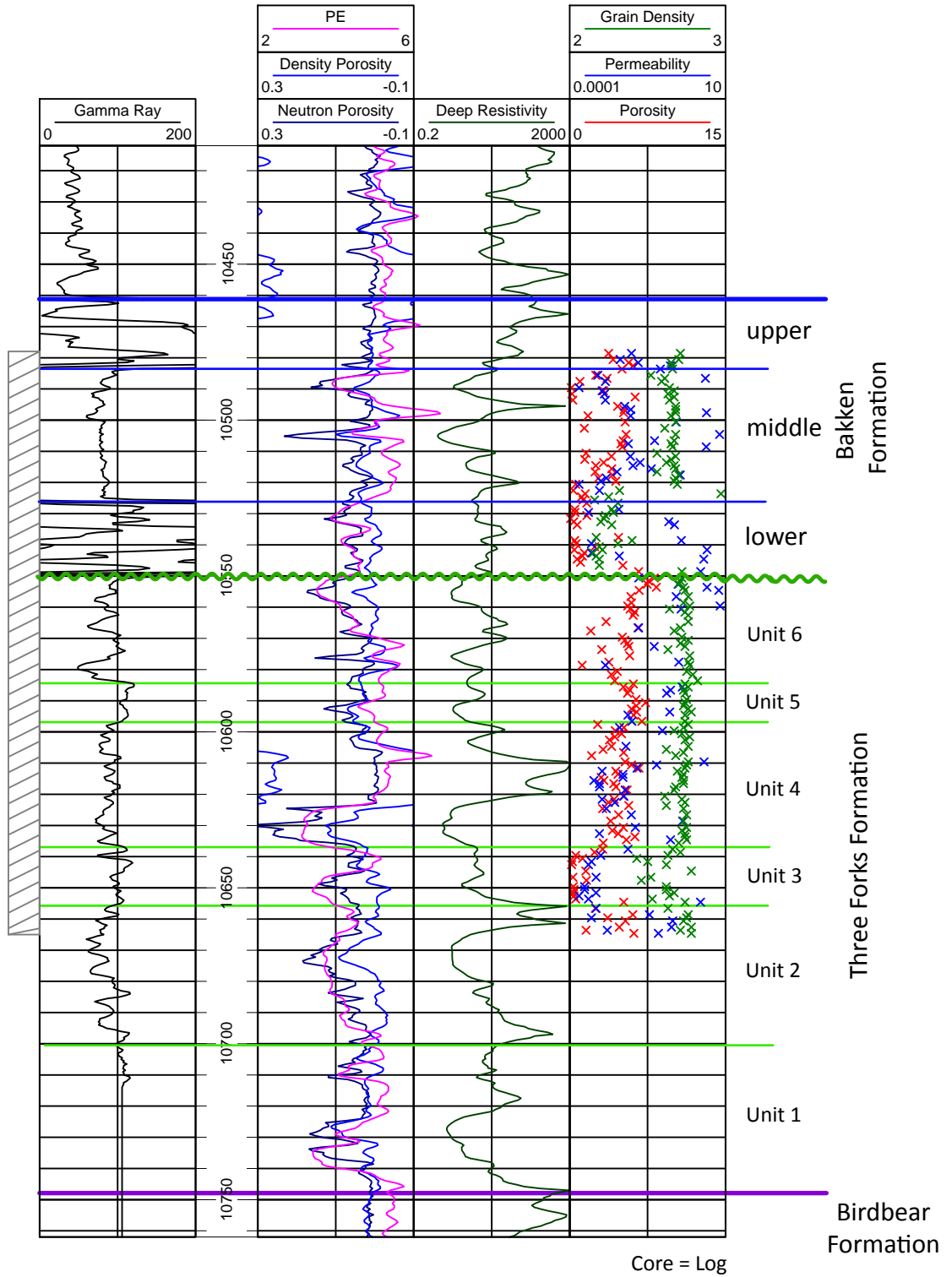
SWSW Sec. 17, T.158N., R96W.
Pogo Producing Company, LLC
#2-17H Pegasus

Cored Interval: 10234 - 10249 ft.



33-053-02894-0000
#17309

SESE Sec. 36, T153N, R95W
Burlington Resources Oil & Gas Company LP
#44-36 Washburn
KB=2356 ft.



SESE Sec. 36, T.153N., R.95W.
Burlington Resources Oil & Gas Company LP
#44-36 Washburn

Cored Interval: 10548 - 10578 ft.



SESE Sec. 36, T.153N., R.95W.
Burlington Resources Oil & Gas Company LP
#44-36 Washburn

Cored Interval: 10578 - 10608 ft.



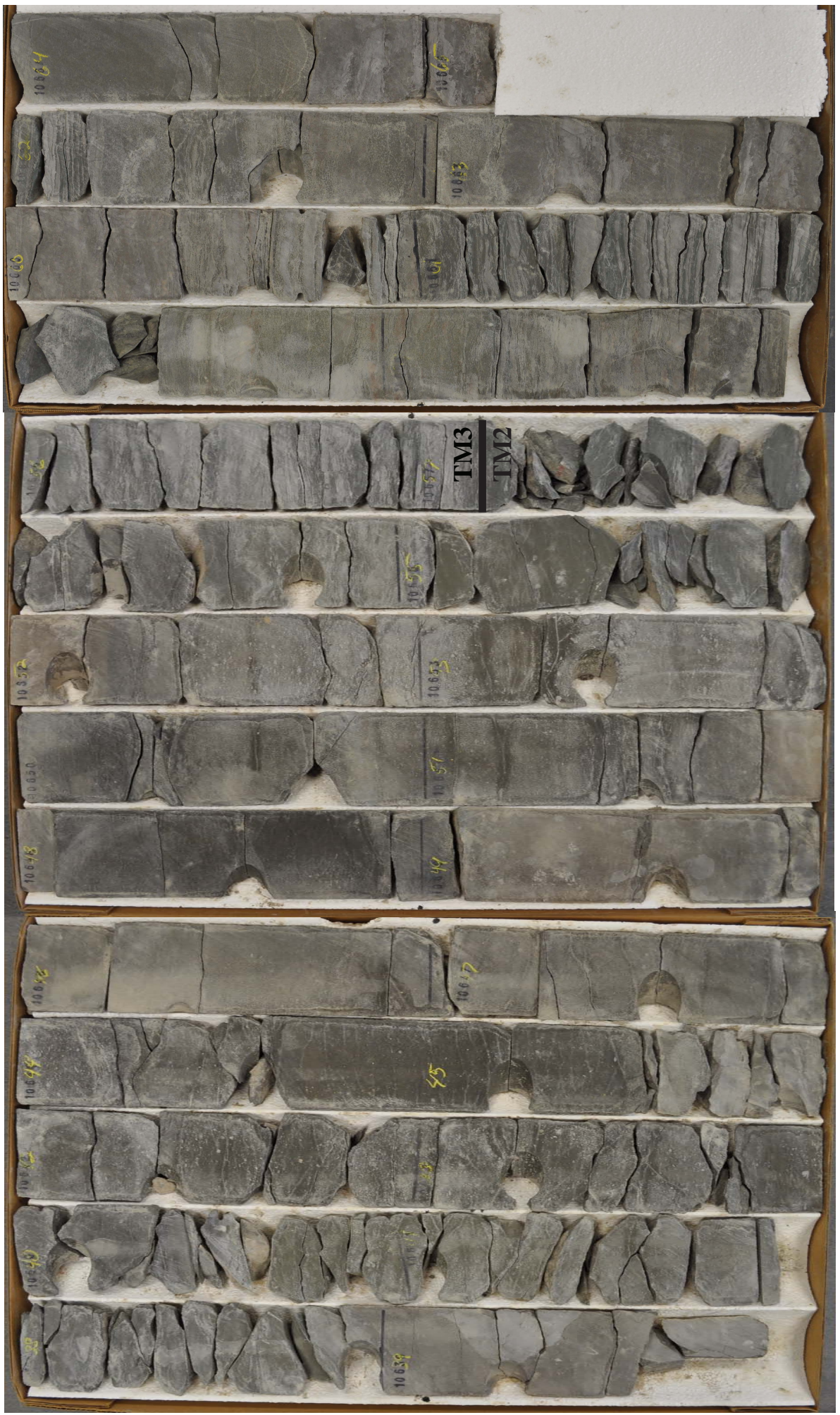
SESE Sec. 36, T.153N., R.95W.
Burlington Resources Oil & Gas Company LP
#44-36 Washburn

Cored Interval: 10608 - 10638 ft.



SESE Sec. 36, T.153N., R.95W.
Burlington Resources Oil & Gas Company LP
#44-36 Washburn

Cored Interval: 10638 - 10665 ft.





33-025-00003-0000

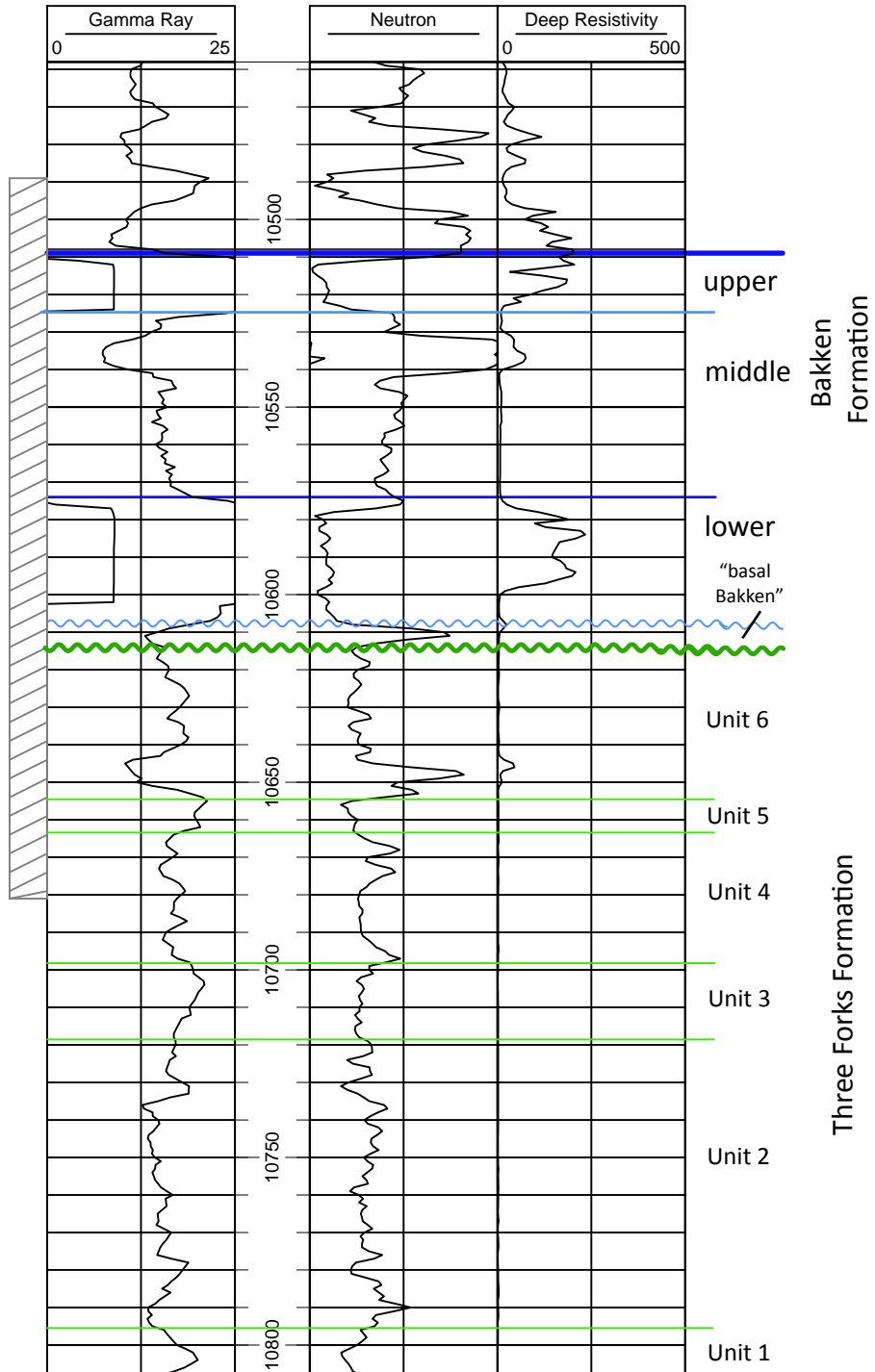
#607

SWNE Sec. 24, T149N, R93W

Socony-Vacuum Oil Company, Inc.

#F32-24-P Angus Kennedy

KB=2149 ft.



Core = Log

SWNE Sec. 24, T.149N., R.93W.
Socony-Vacuum Oil Company, Inc.
#F32-24P Angus Kennedy

Cored Interval: 10601 - 10626 ft



SWNE Sec. 24, T.149N., R.93W.
Socony-Vacuum Oil Company, Inc.
#F32-24P Angus Kennedy

Cored Interval: 10626 - 10661 ft





33-025-00005-0000

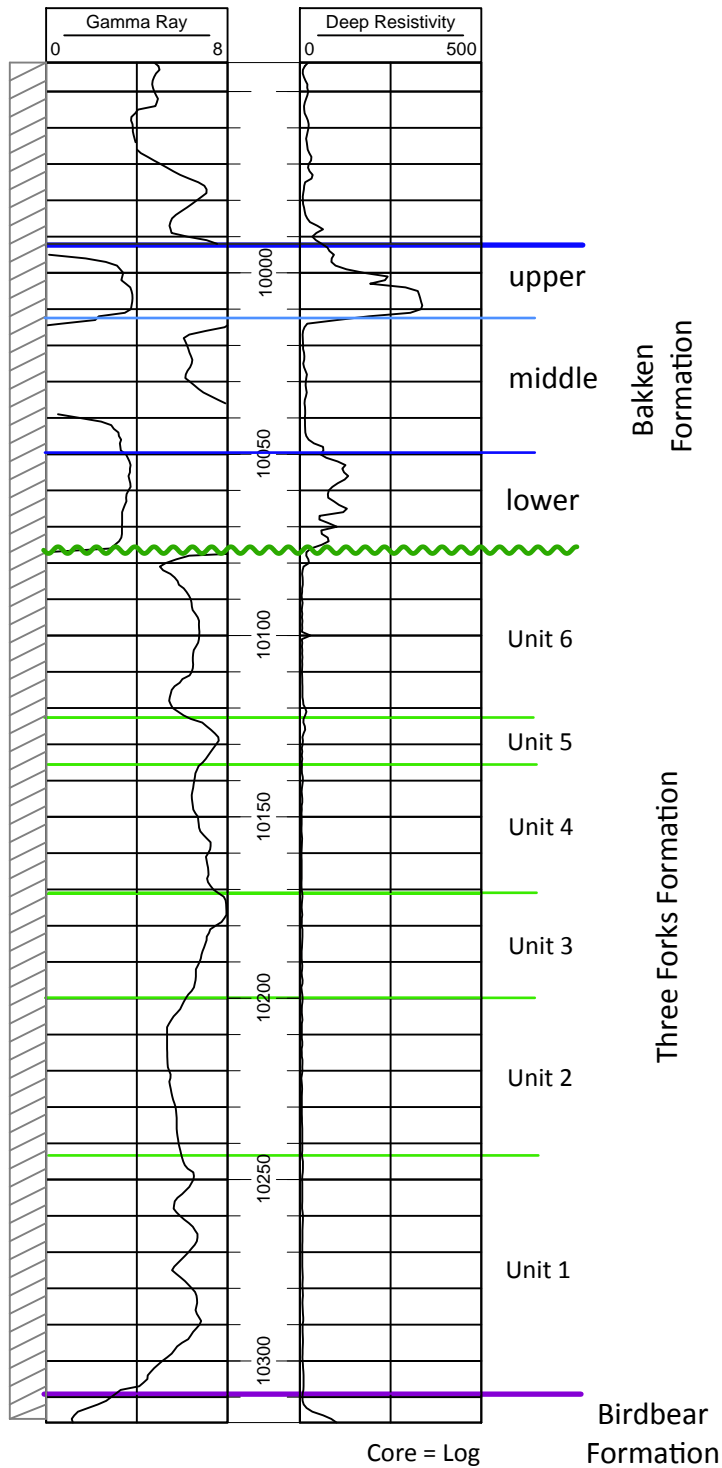
#793

SENW Sec. 22, T149N, R91W

Mobil Producing Company

#F-22-22-1 Pegasus Div Solomon Bird Bear

KB=2102 ft.

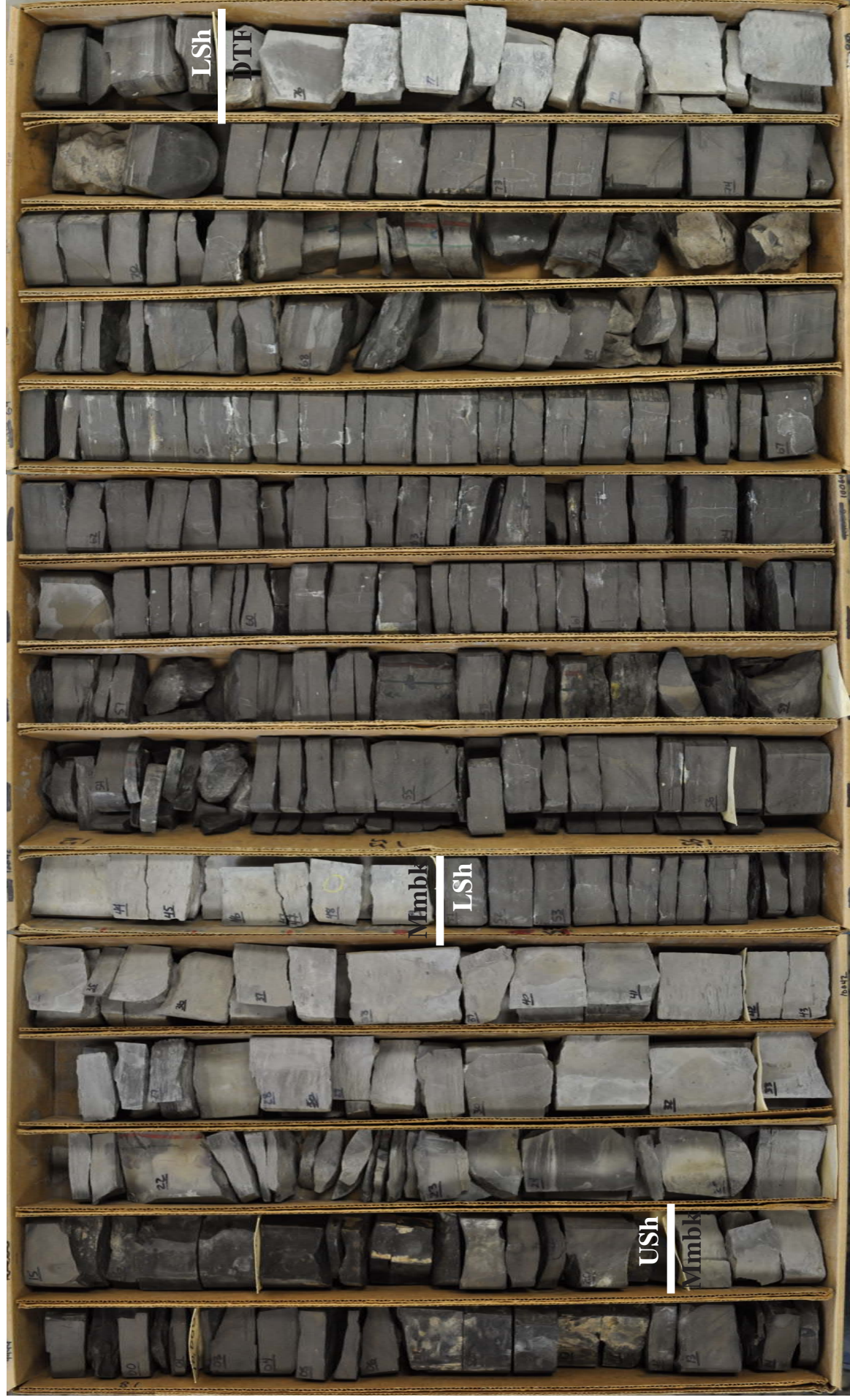


SENW Sec. 22, T.149N., R.91W.

Mobil Producing Company

#F22-22-1 Pegasus Div Solomon Bird Bear

Cored Interval: 9999 - 10080 ft



SENW Sec. 22, T.149N., R.91W.
Mobil Producing Company
#F22-22-1 Pegasus Div Solomon Bird Bear

Cored Interval: 10080 - 10202 ft.



SENW Sec. 22, T.149N., R.91W.

Mobil Producing Company

#F22-22-1 Pegasus Div Solomon Bird Bear

Cored Interval: 10202 - 10275 ft.





33-057-00035-0000

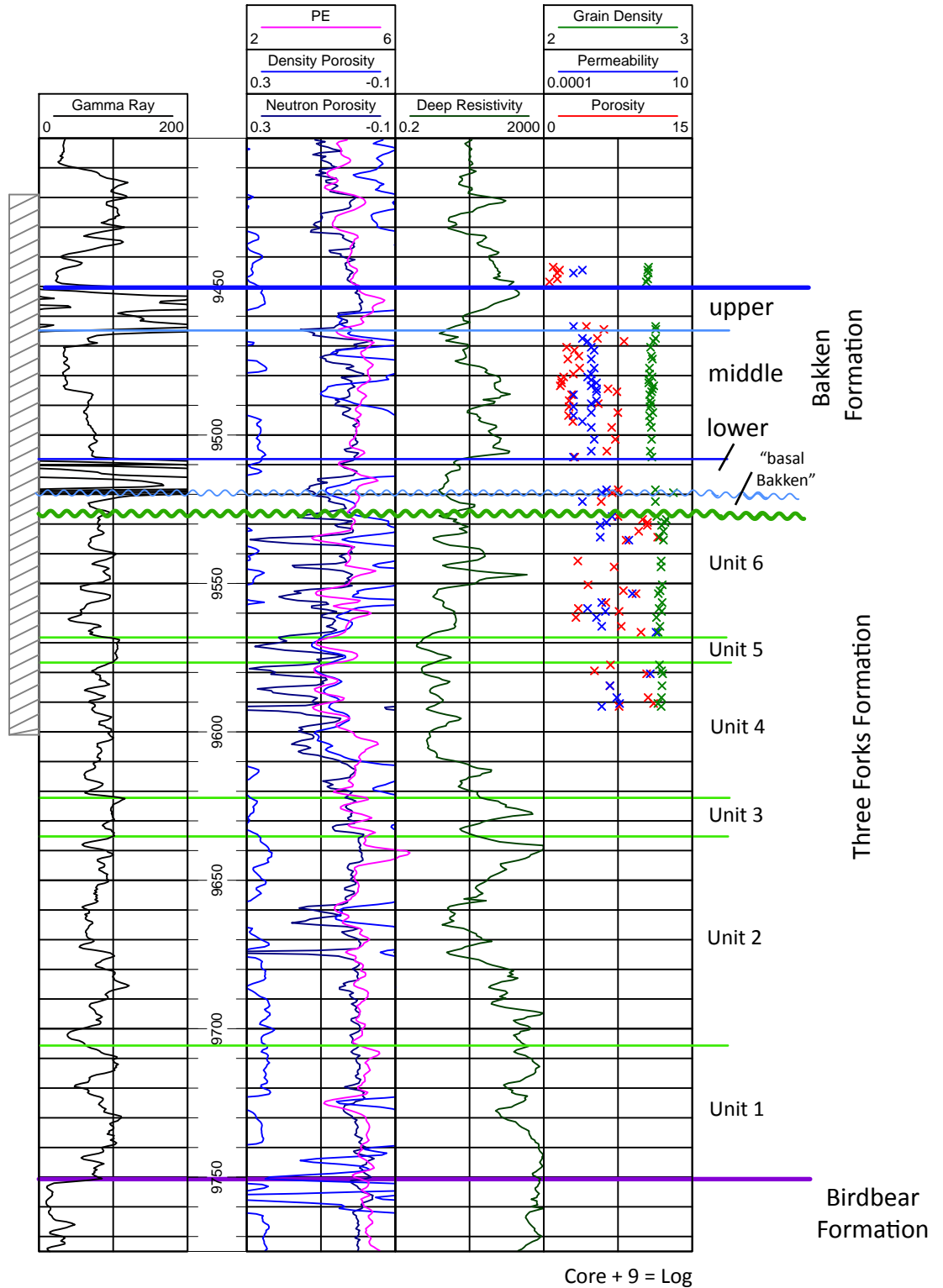
#17723

SWSE Sec. 9, T145N, R90W

XTO Energy, Inc.

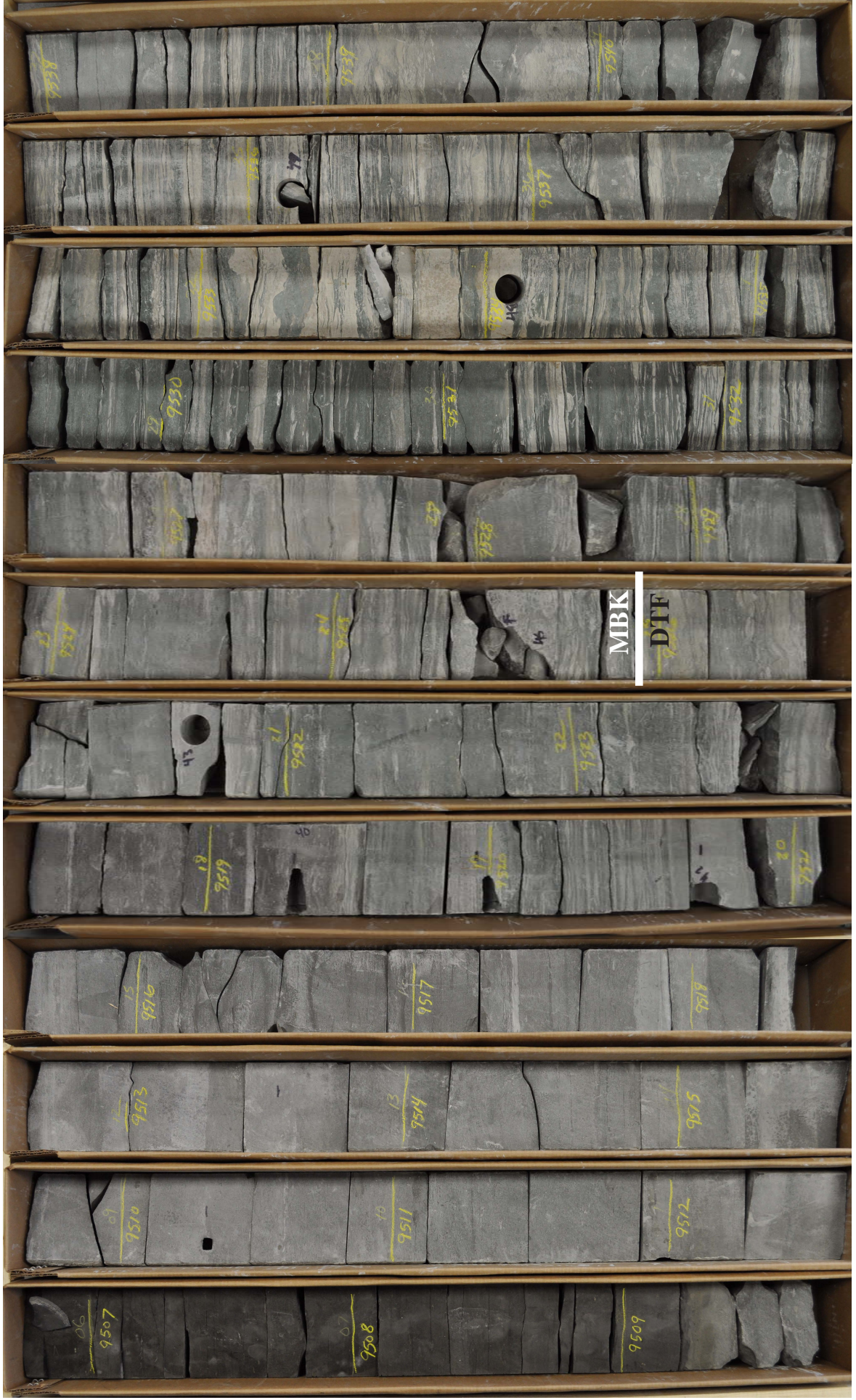
#34X-9 Miller

KB=2040 ft.



SWSE Sec. 9, T.145N., R.90W.
XTO Energy Inc.
#34X-9 Miller

Cored Interval: 9507 - 9540 ft.



SWSE Sec. 9, T.145N., R.90W.
XTO Energy Inc.
#34X-9 Miller

Cored Interval: 9540 - 9575 ft.



SWSE Sec. 9, T.145N., R.90W.
XTO Energy Inc.
#34X-9 Miller

Cored Interval: 9575 - 9591 ft.



33-061-00884-0000

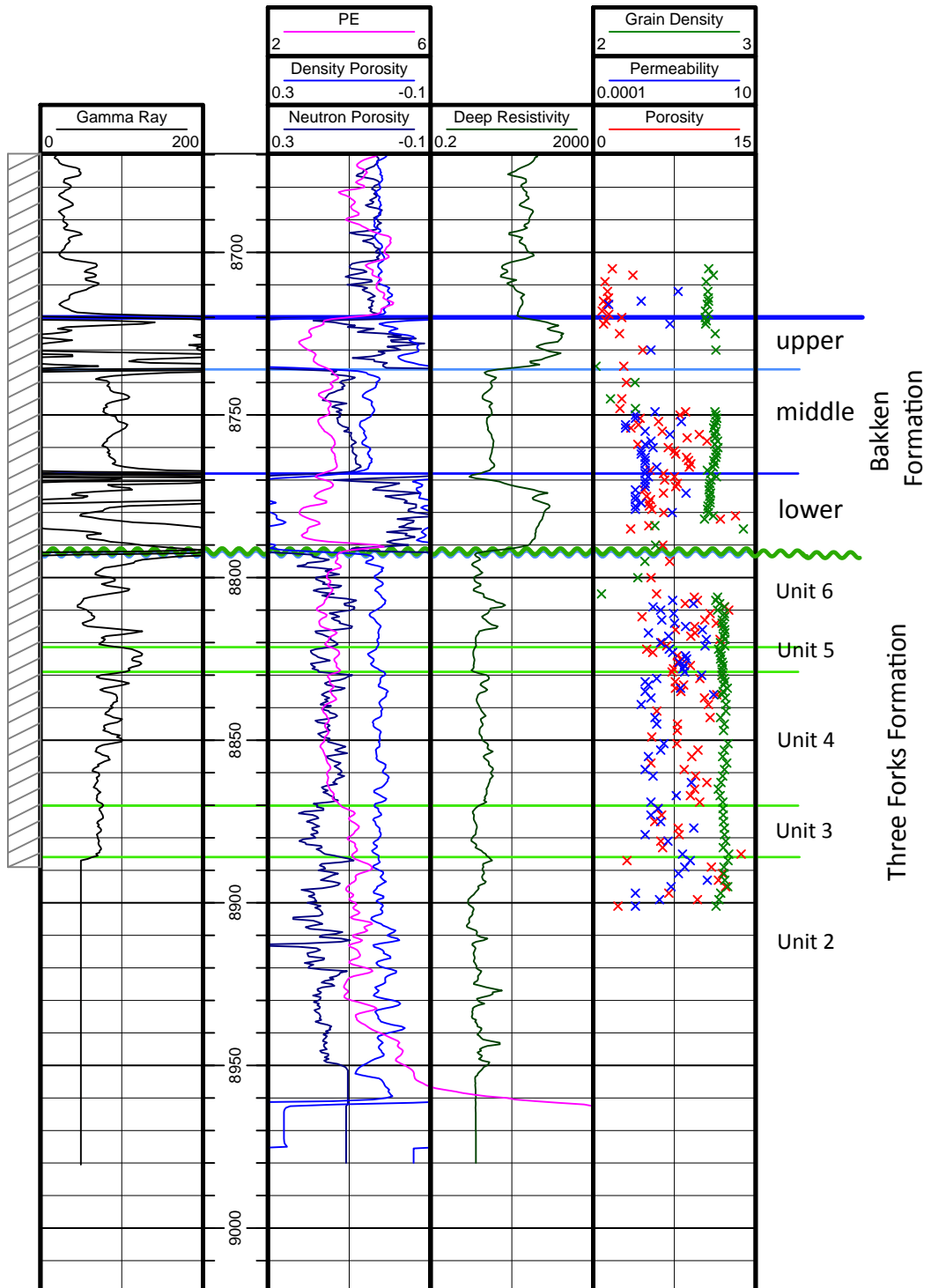
#17676

SESE Sec 6, T158N, R90W

EOG Resources, Inc.

#1-06H Sidonia

KB = 2313 ft.



Core + 2 = Log

SESE Sec. 6, T.158N., R.90W.
EOG Resources, Inc.
#1-06H Sidonia

Cored Interval: 8790 - 8823 ft.



SESE Sec. 6, T.158N., R.90W.
EOG Resources, Inc.
#1-06H Sidonia

Cored Interval: 8823 - 8859 ft.



SESE Sec. 6, T.158N., R.90W.
EOG Resources, Inc.
#1-06H Sidonia

Cored Interval: 8859 - 8887.25 ft.

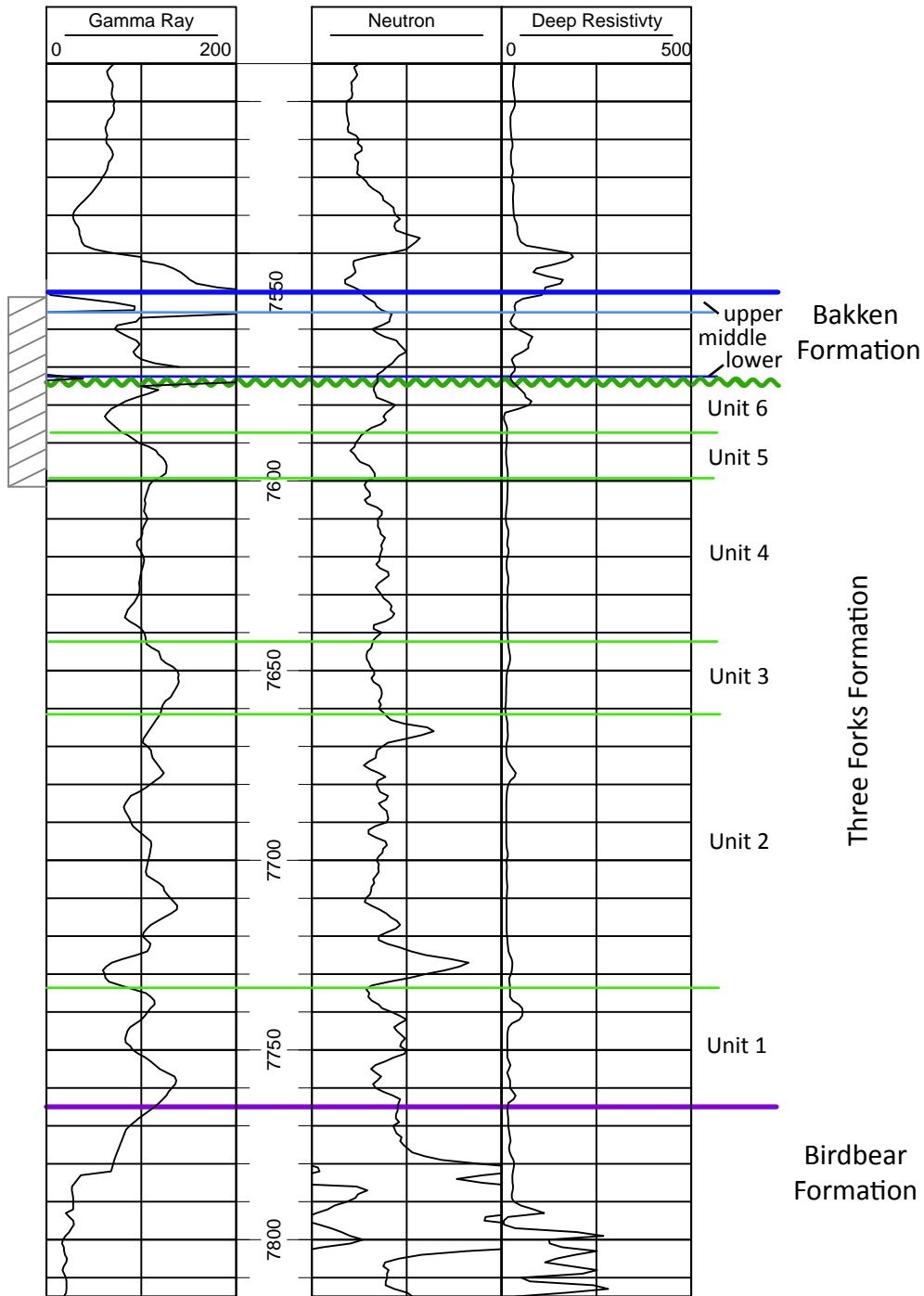




33-101-00006-0000

#105

SWNE Sec. 2, T153N, R85W
Stanolind Oil & Gas Company
#1 Walter & Ingeberg Waswick
KB=2175 ft.



Core - 12(?) = Log

Cored Interval: 7572 - 7612 ft

SWNE Sec. 2, T.153N., R85W.
Stanolind Oil & Gas Company
#1 Walter & Ingeberg Waswick

