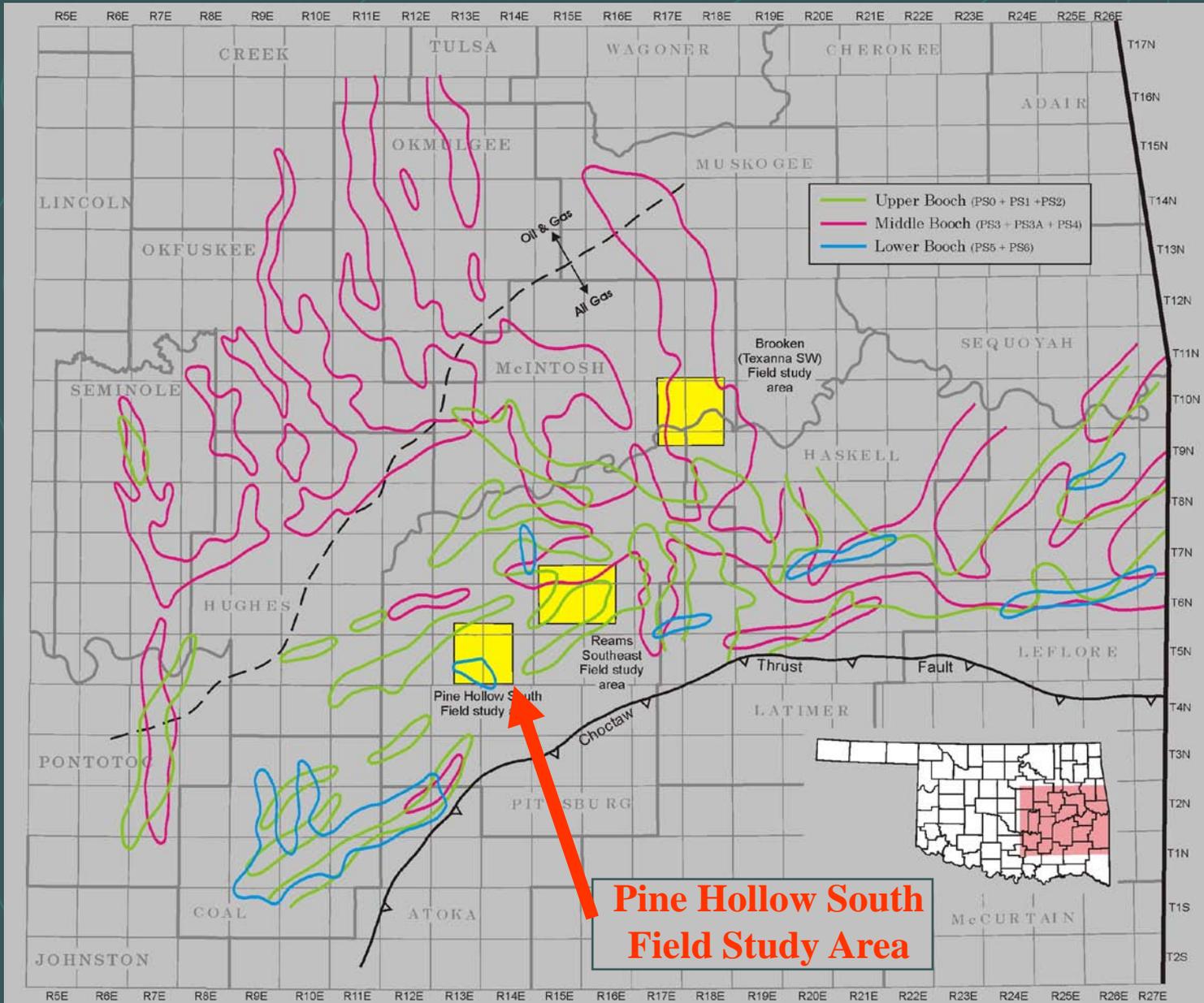




Pine Hollow South Field Study



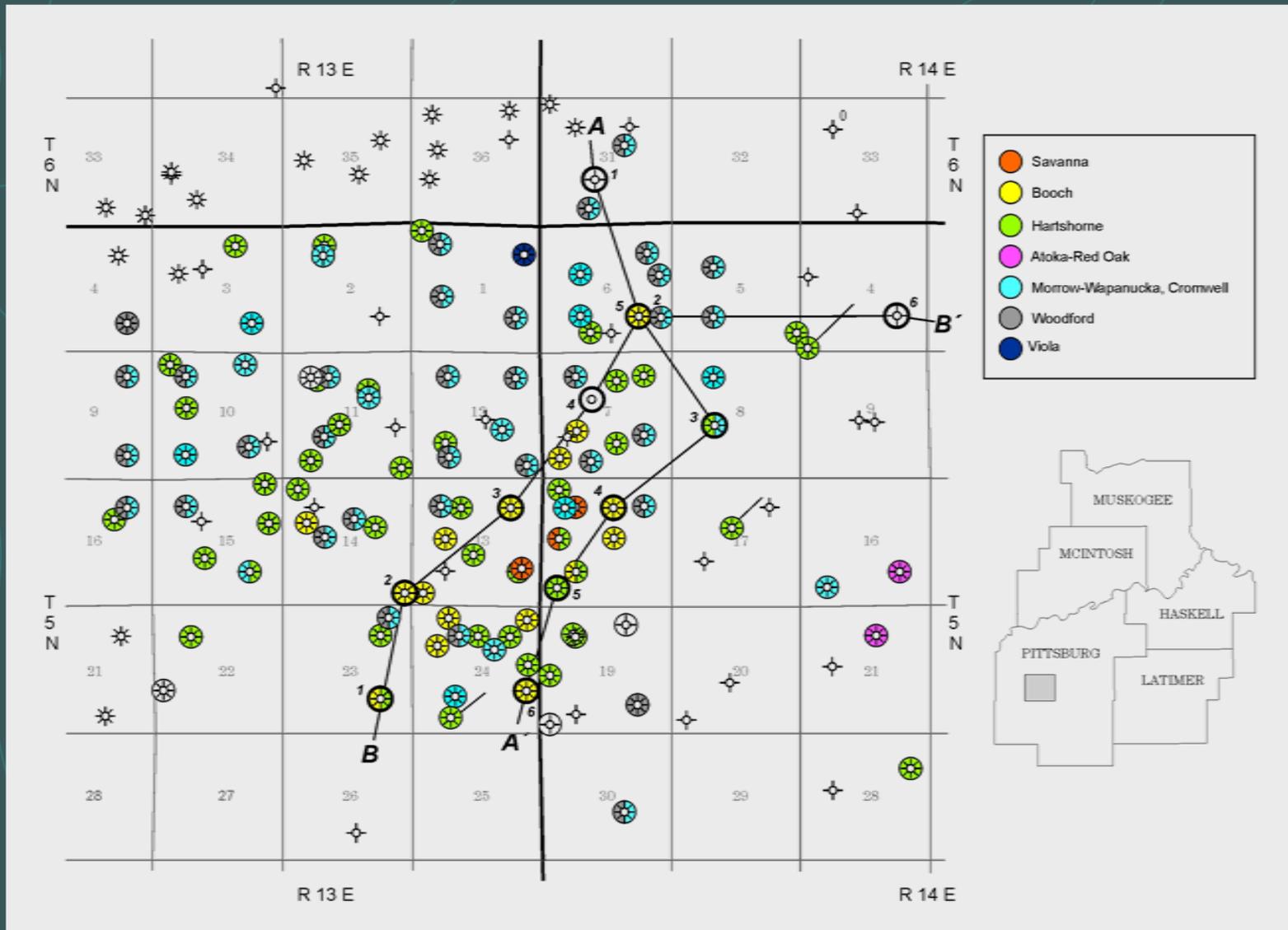
Booch Gross Sand Isopach



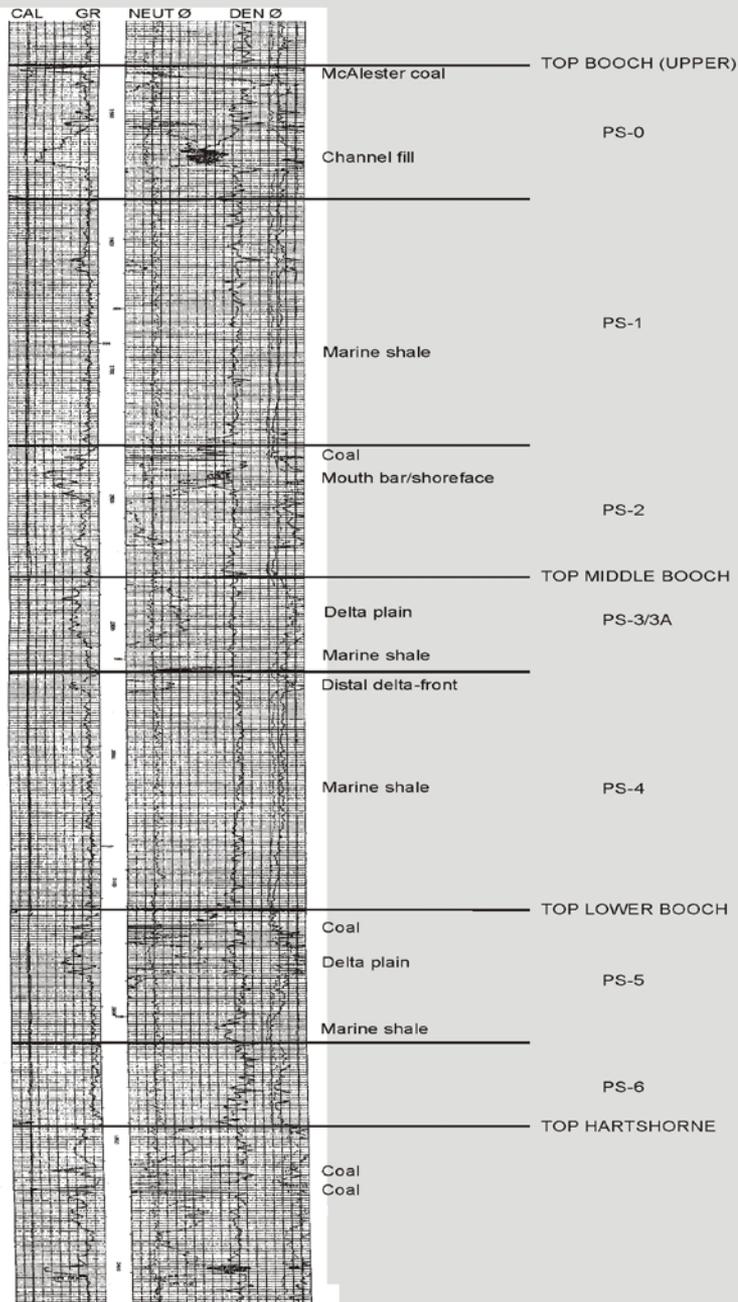
**Pine Hollow South
Field Study Area**



Pine Hollow South Field Study Area Production



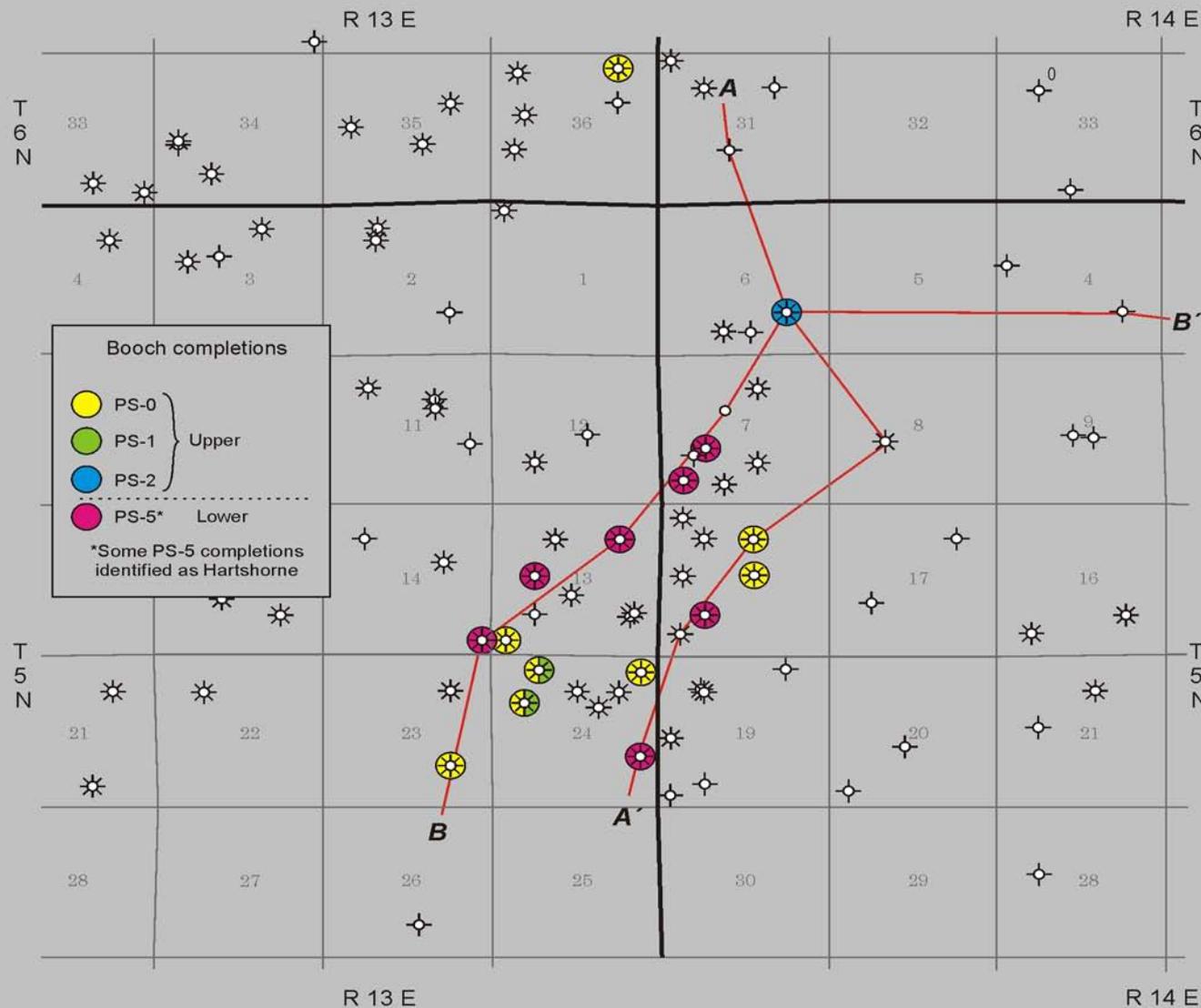
Tilford Pinson Expl. LLC.
 Grantham #1-31
 NW SE NE SW Sec. 31-6N-14E
 KBE: 628'



Pine Hollow South Field Study Type Log

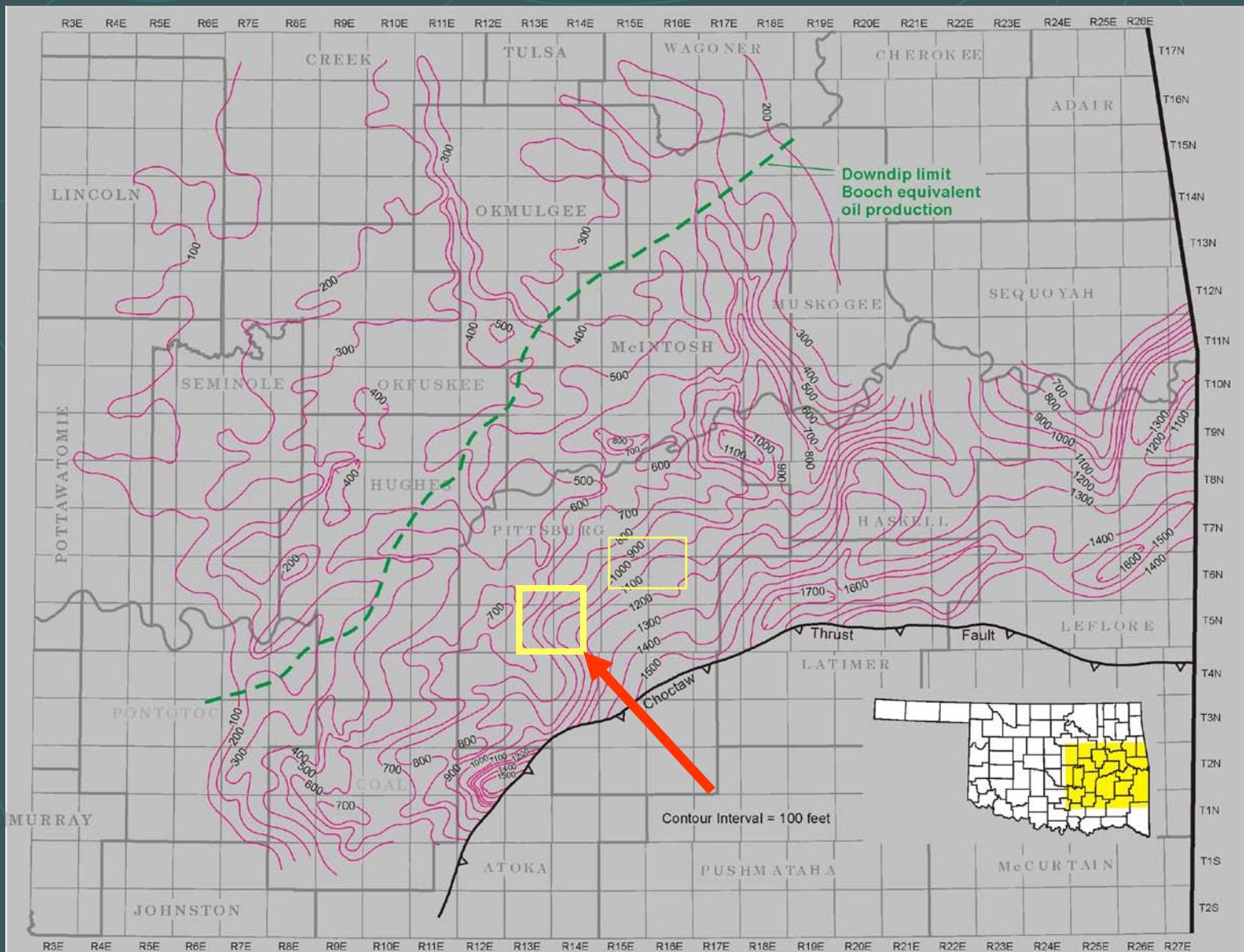


Pine Hollow South Field Study Booch Production



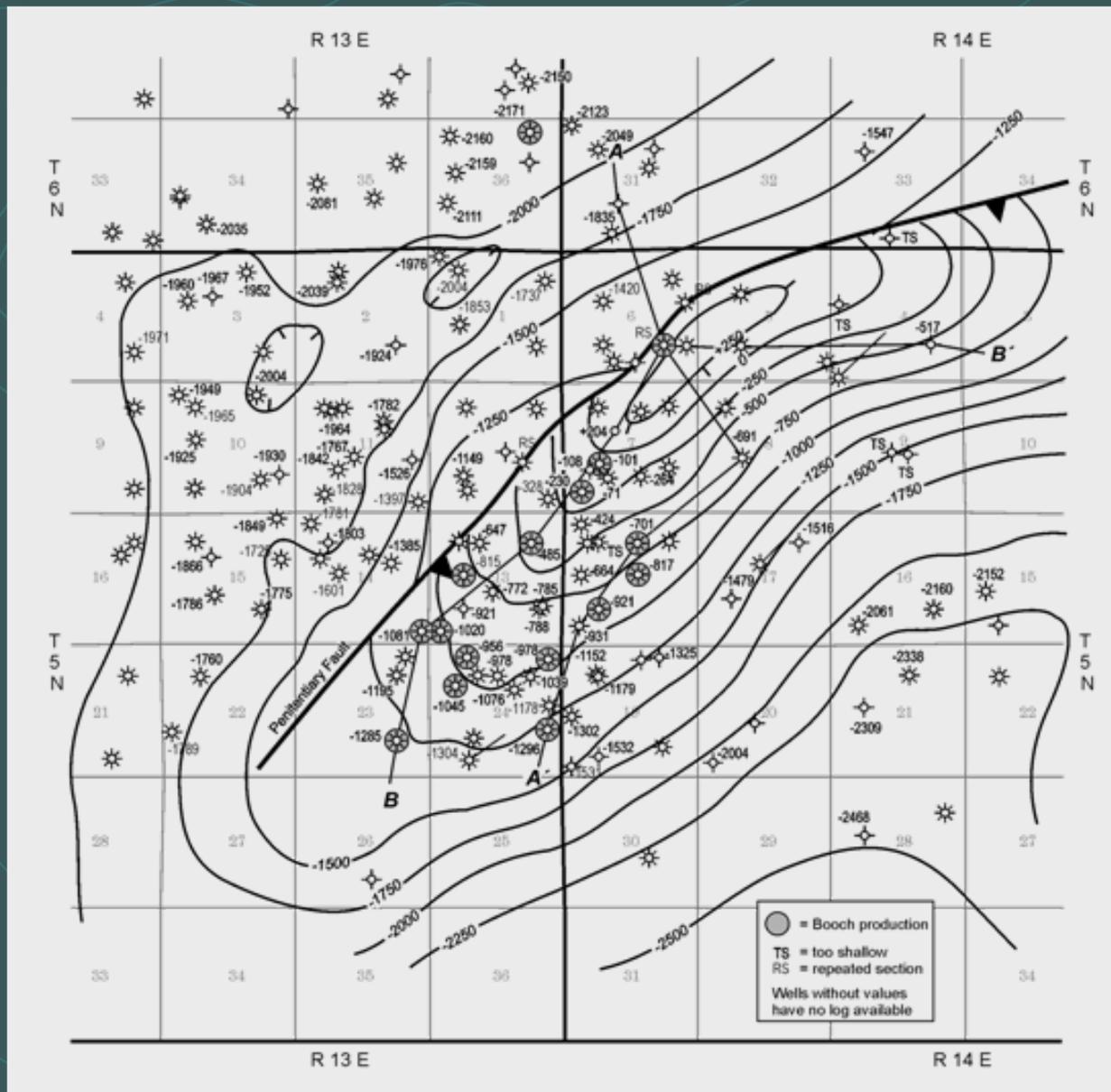


Booch Gross Interval Isopach Showing Pine Hollow South Study Area





Pine Hollow South Field Study Structure: Top Booch





Pine Hollow South Field Study Stratigraphic Cross-Section A-A'

SP 2005-1, PLATES 15 and 16 of 16
Pine Hollow South Field Stratigraphic Cross Section A-A' and B-B'
Booch Gas Play in Southeastern Oklahoma

OKLAHOMA GEOLOGICAL SURVEY
Charles J. Munkin, Director

A
North

A'
South

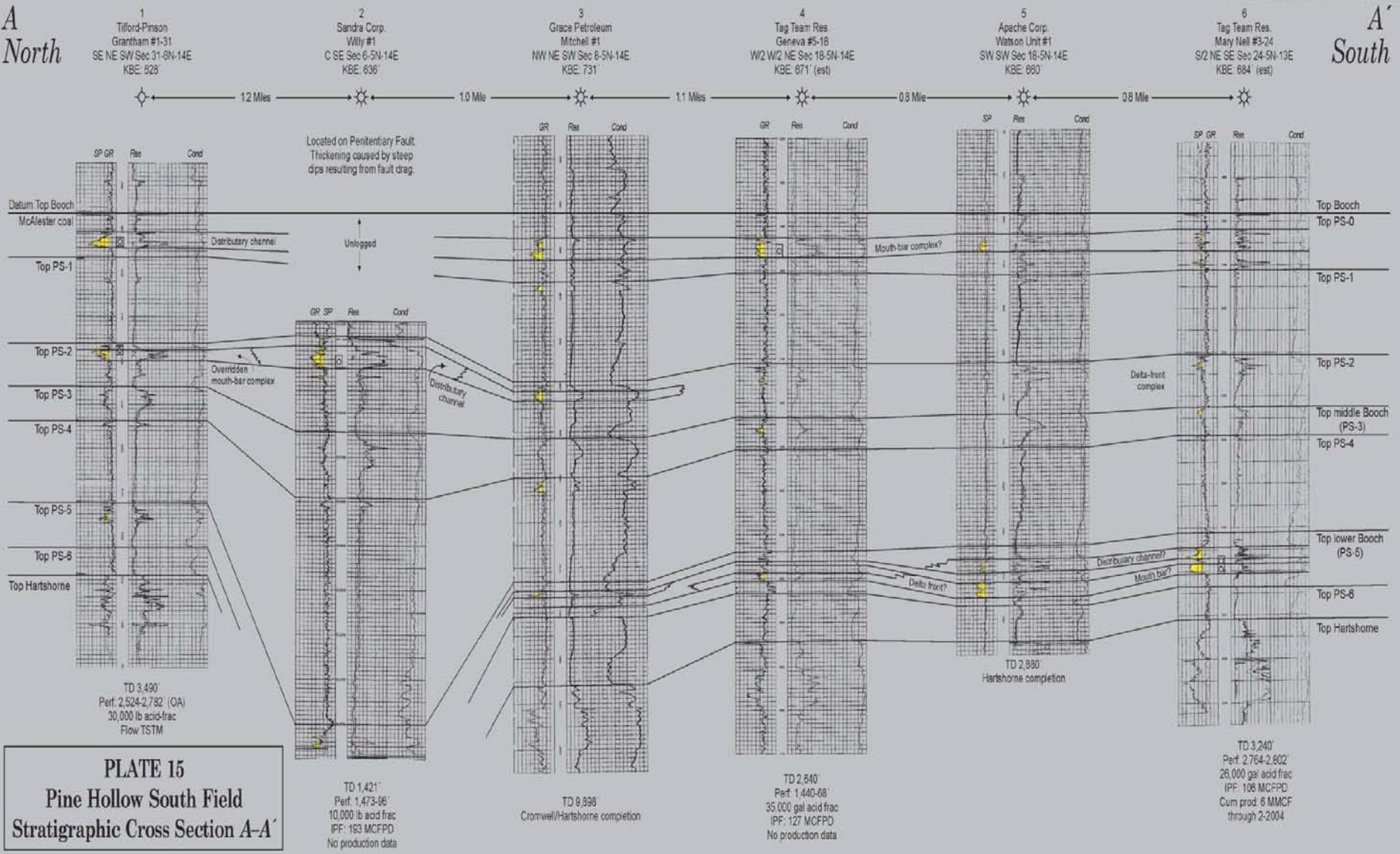


PLATE 15
Pine Hollow South Field
Stratigraphic Cross Section A-A'



Pine Hollow South Field Study Stratigraphic Cross-Section B-B'

B
West

B'
East

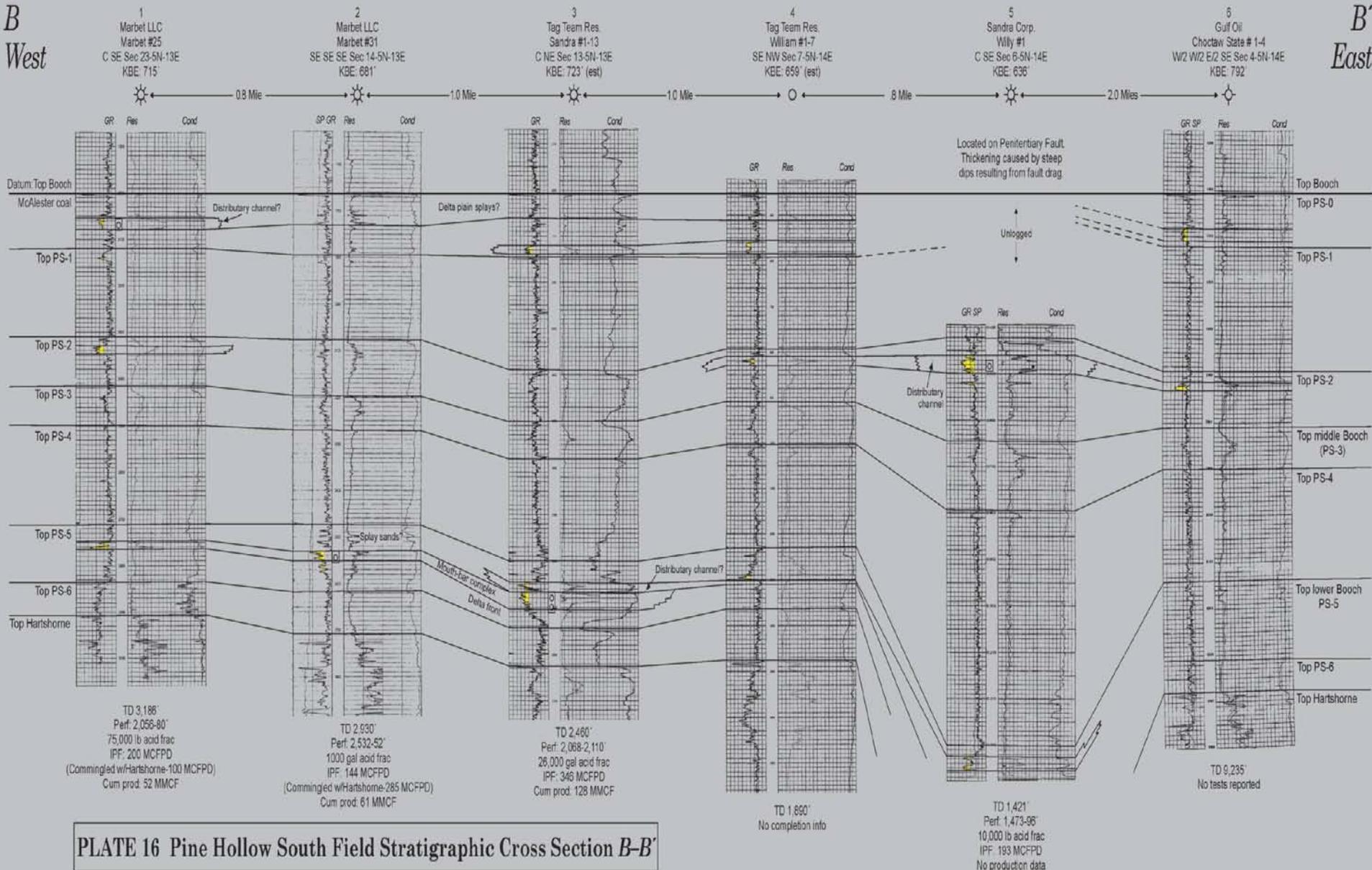
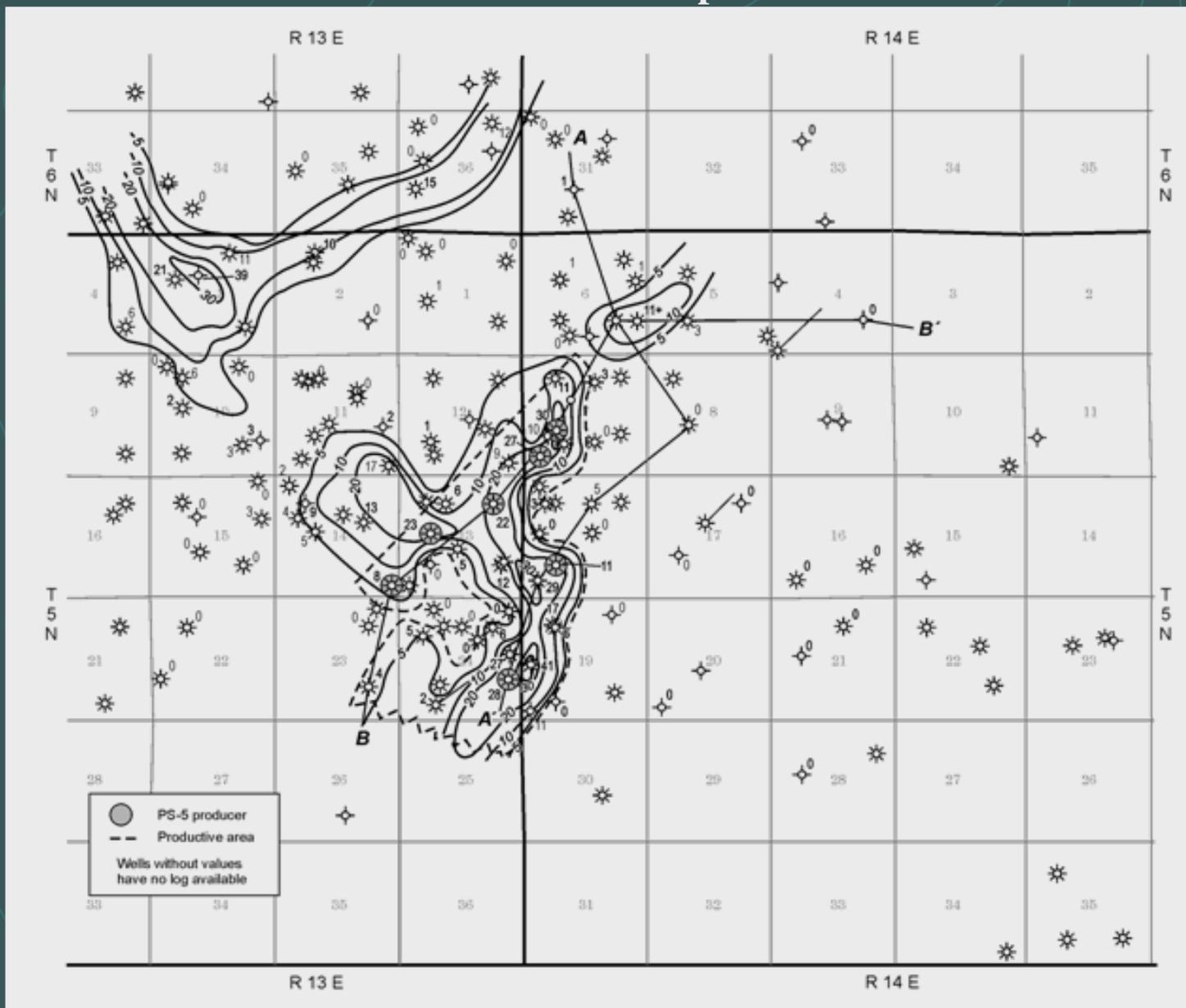


PLATE 16 Pine Hollow South Field Stratigraphic Cross Section B-B'



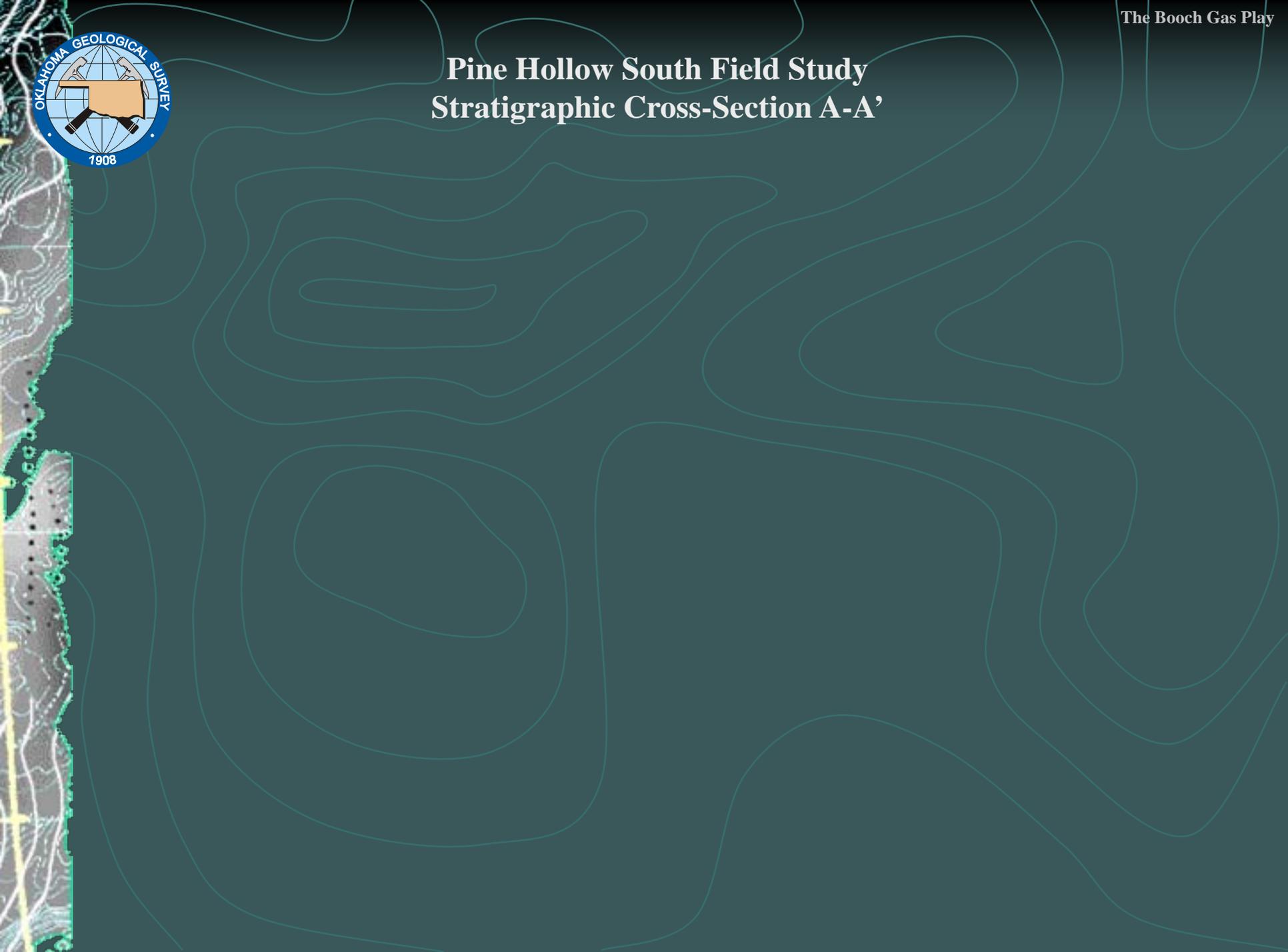
Pine Hollow South Field Study

PS-5 Net Sand Isopach



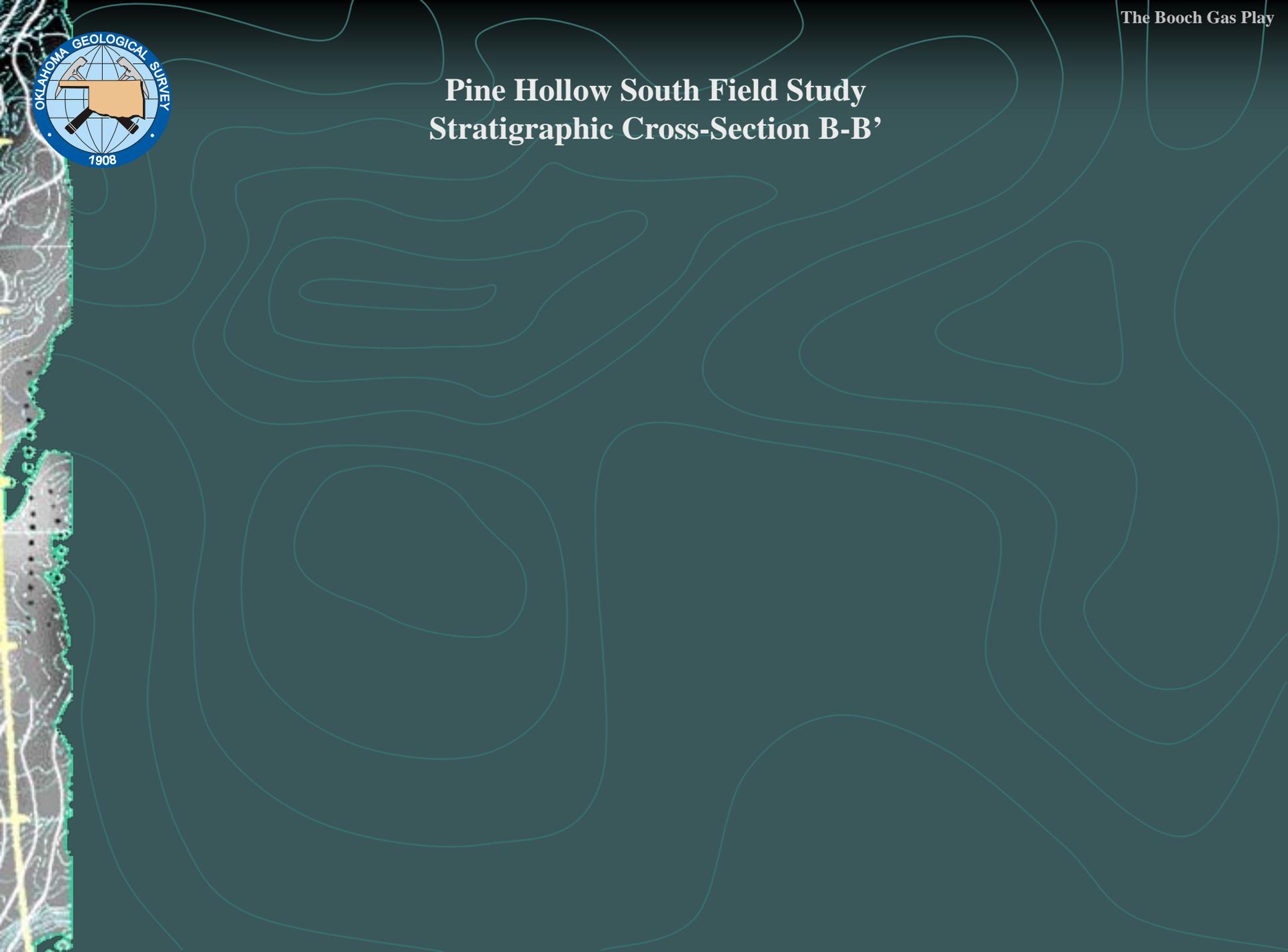


Pine Hollow South Field Study Stratigraphic Cross-Section A-A'





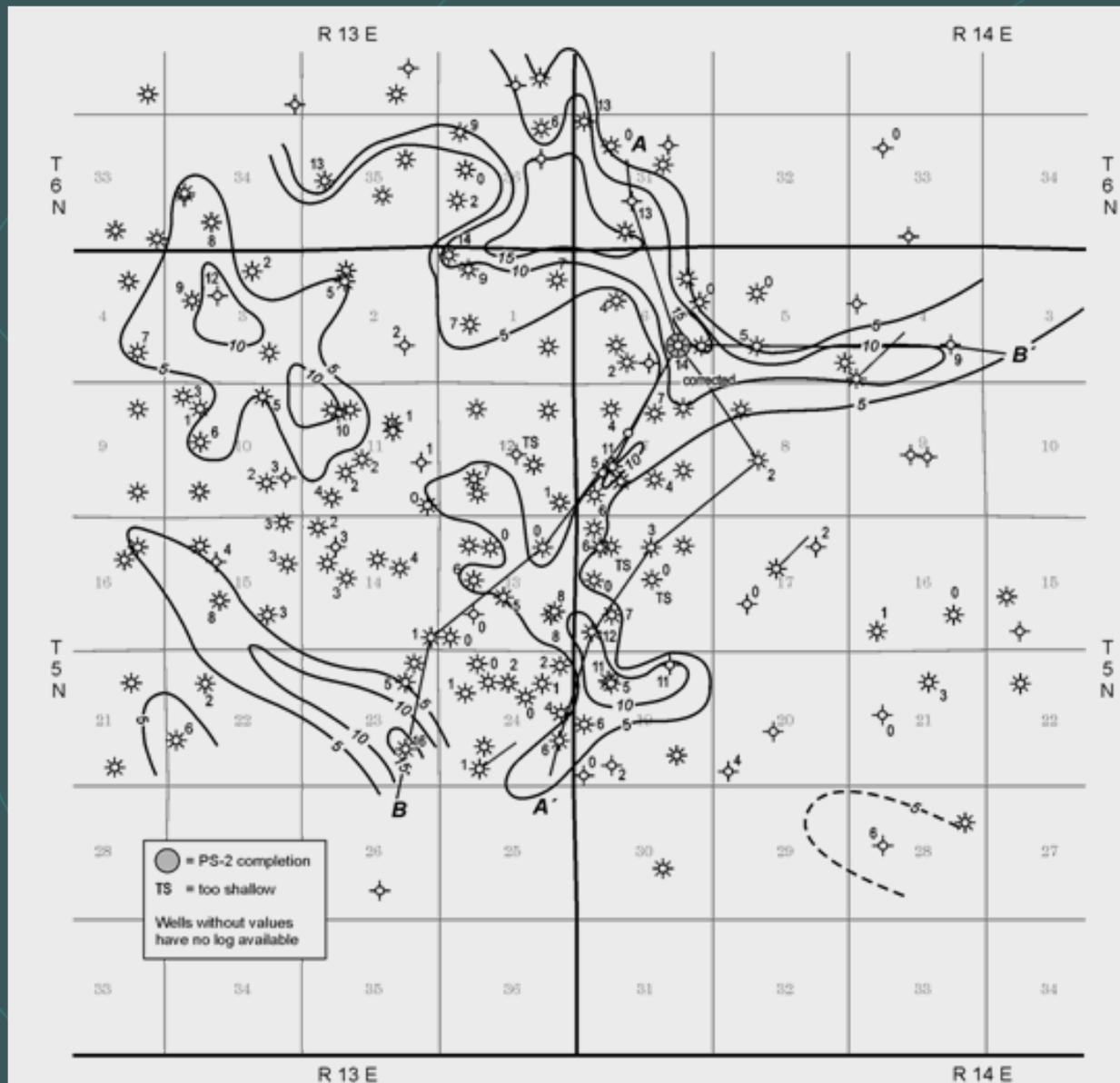
Pine Hollow South Field Study Stratigraphic Cross-Section B-B'





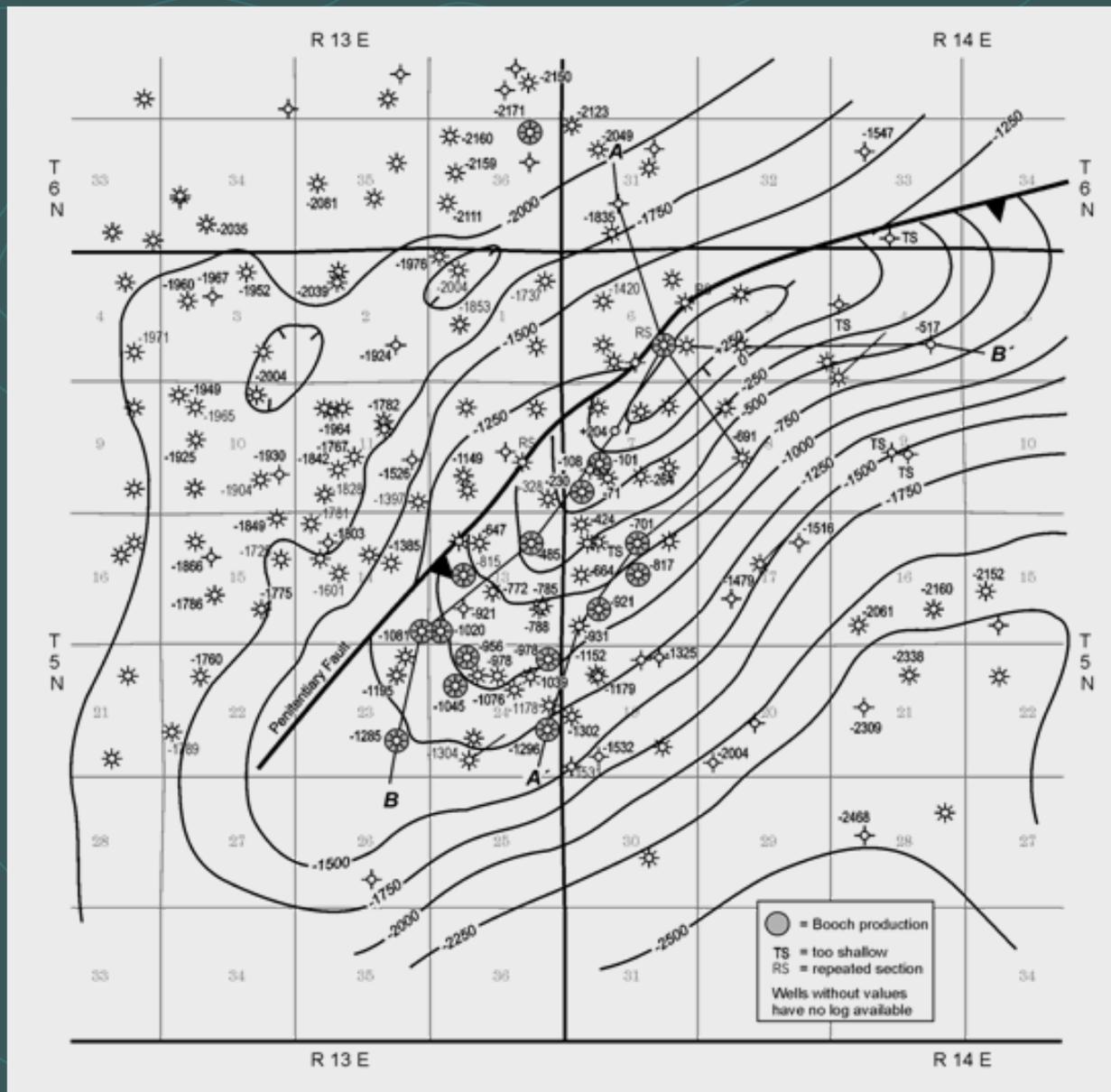
Pine Hollow South Field Study

PS-2 Net Sand Isopach



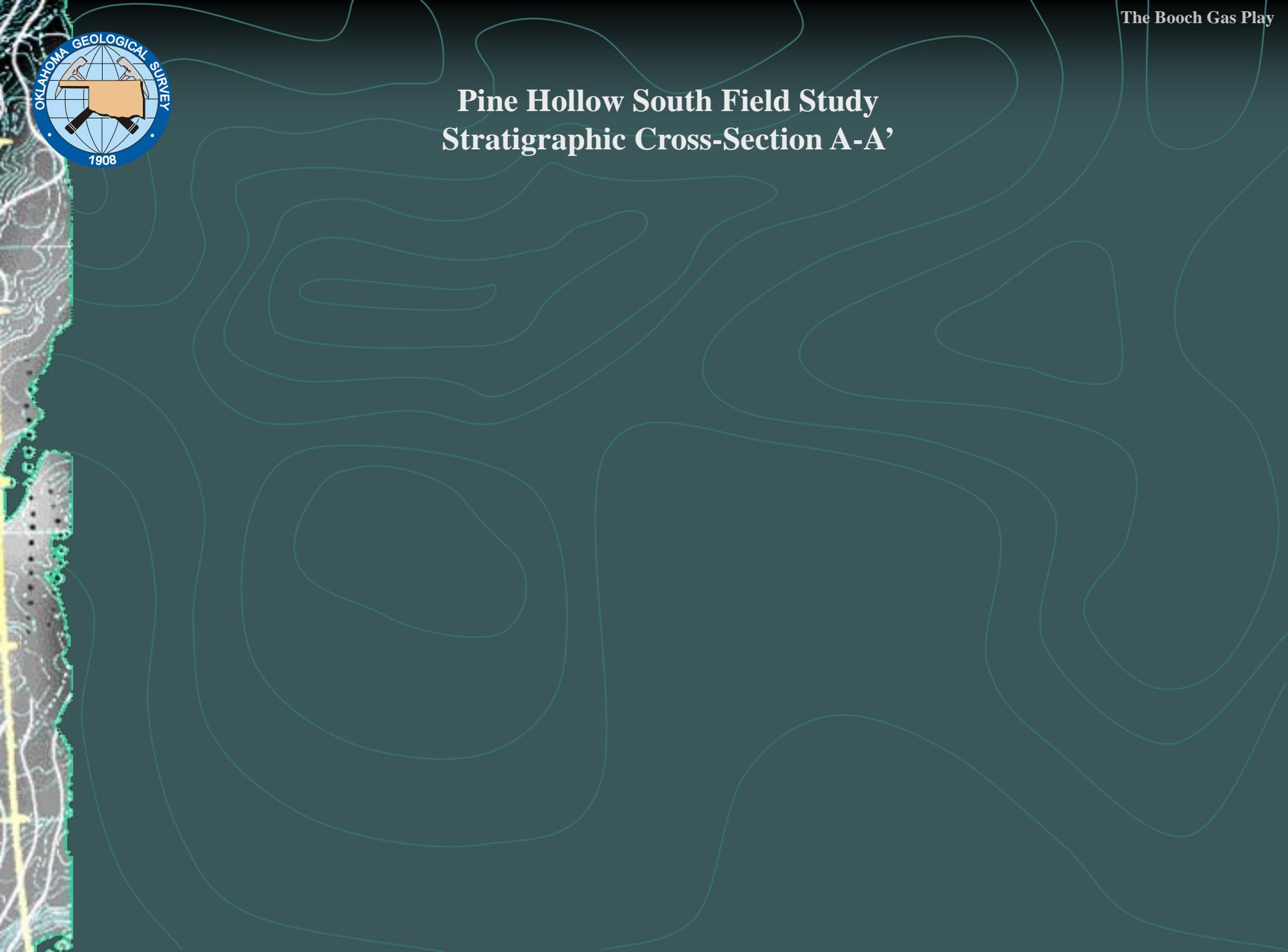


Pine Hollow South Field Study Structure: Top Booch



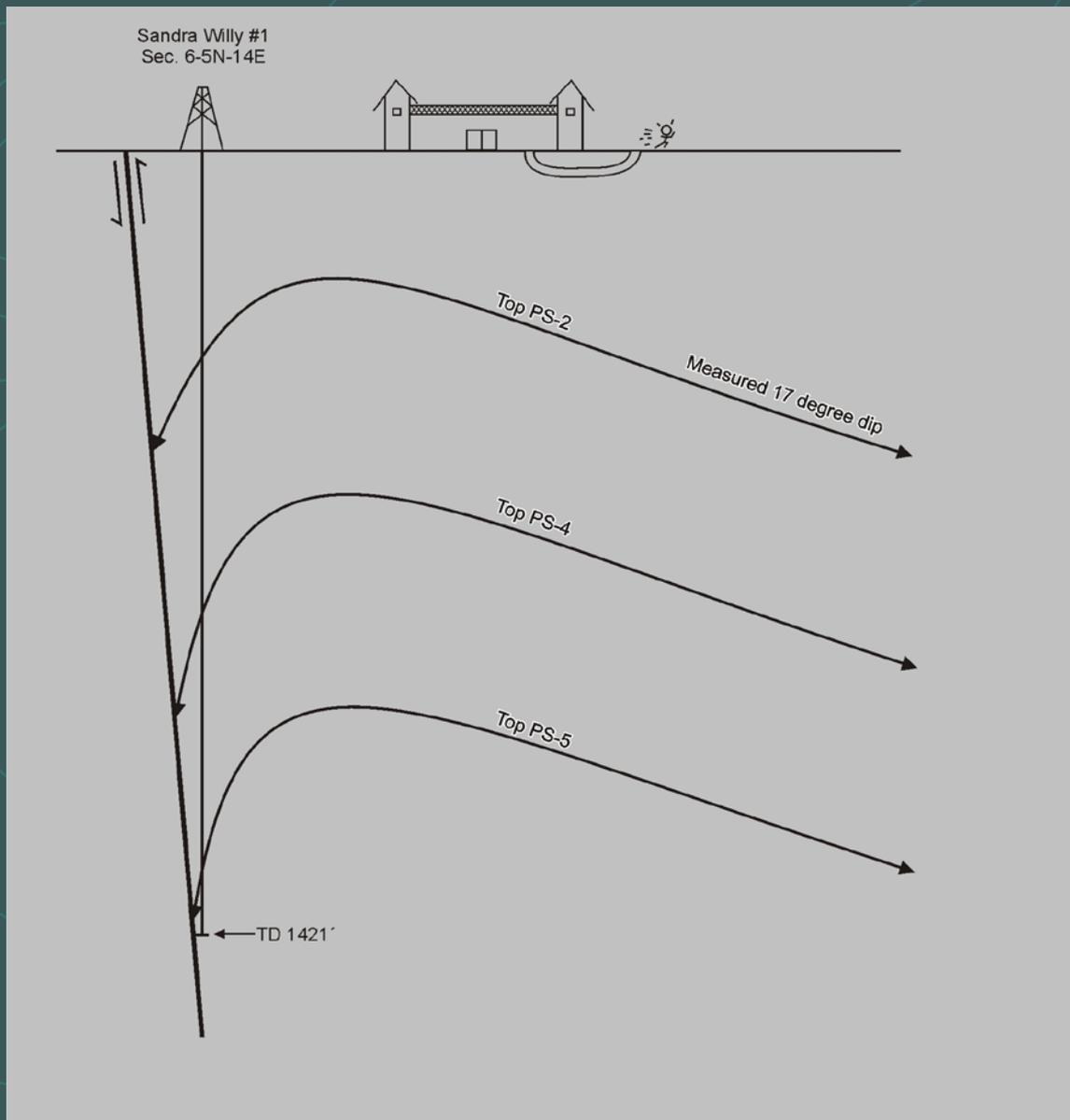


Pine Hollow South Field Study Stratigraphic Cross-Section A-A'





Pine Hollow South Field Study Apparent Penitentiary Fault Drag



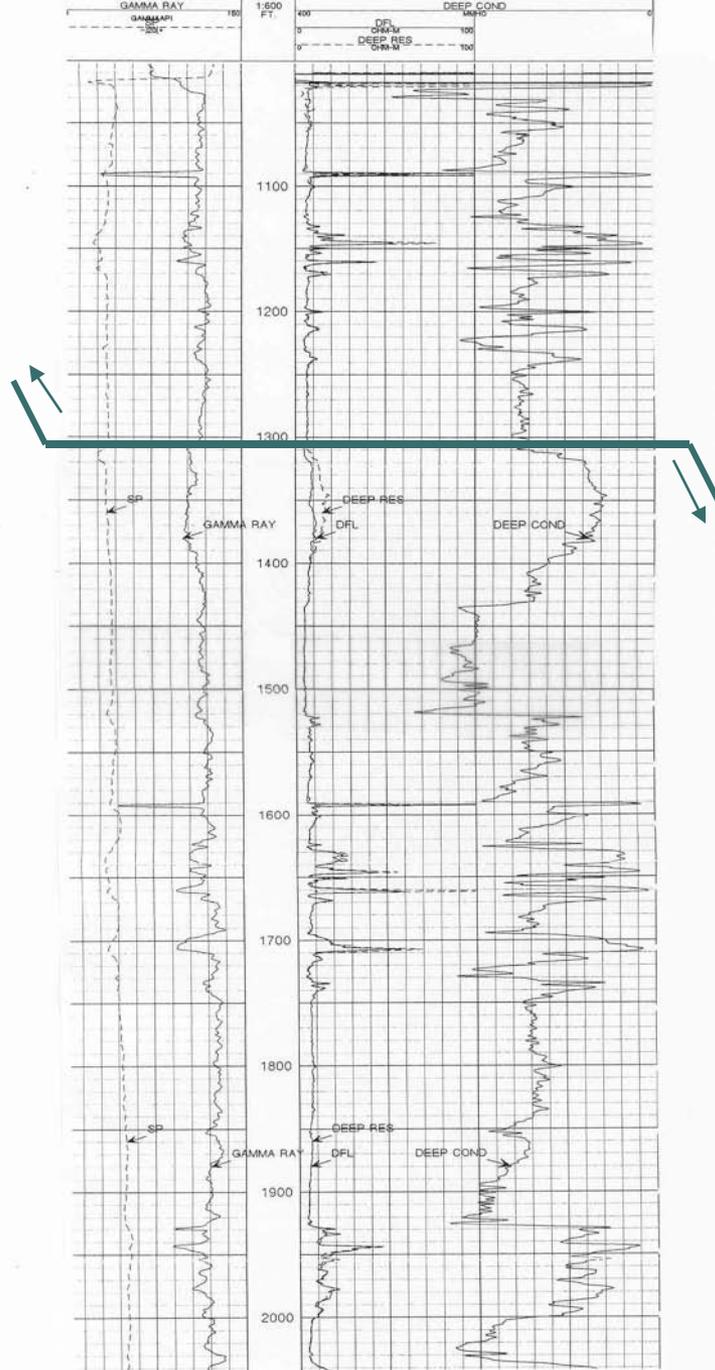


Pine Hollow South Field Study

Newfield Sandra # 1-12

Sec 12 5N 13E

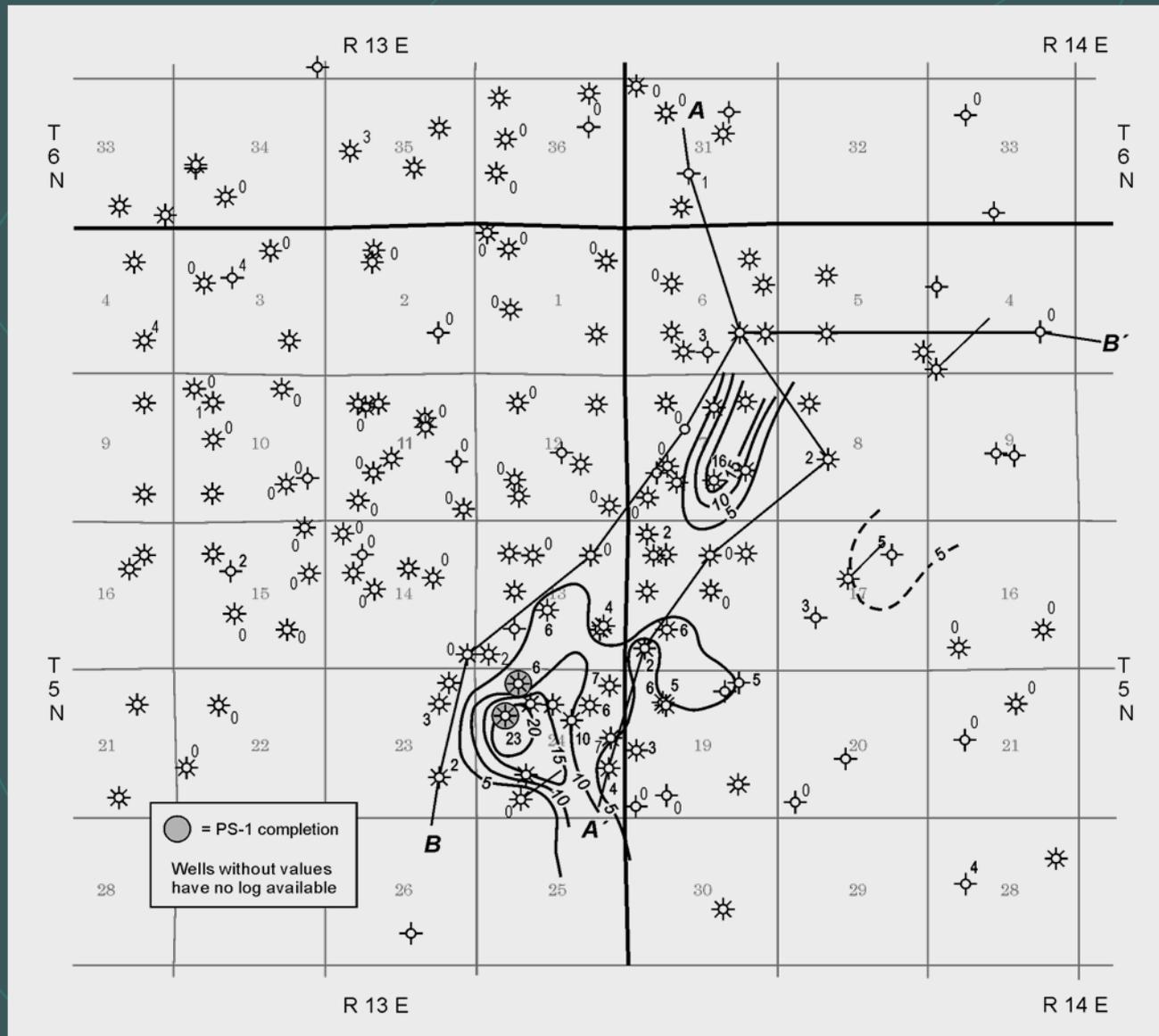
(Vertical Woodford Test)





Pine Hollow South Field Study

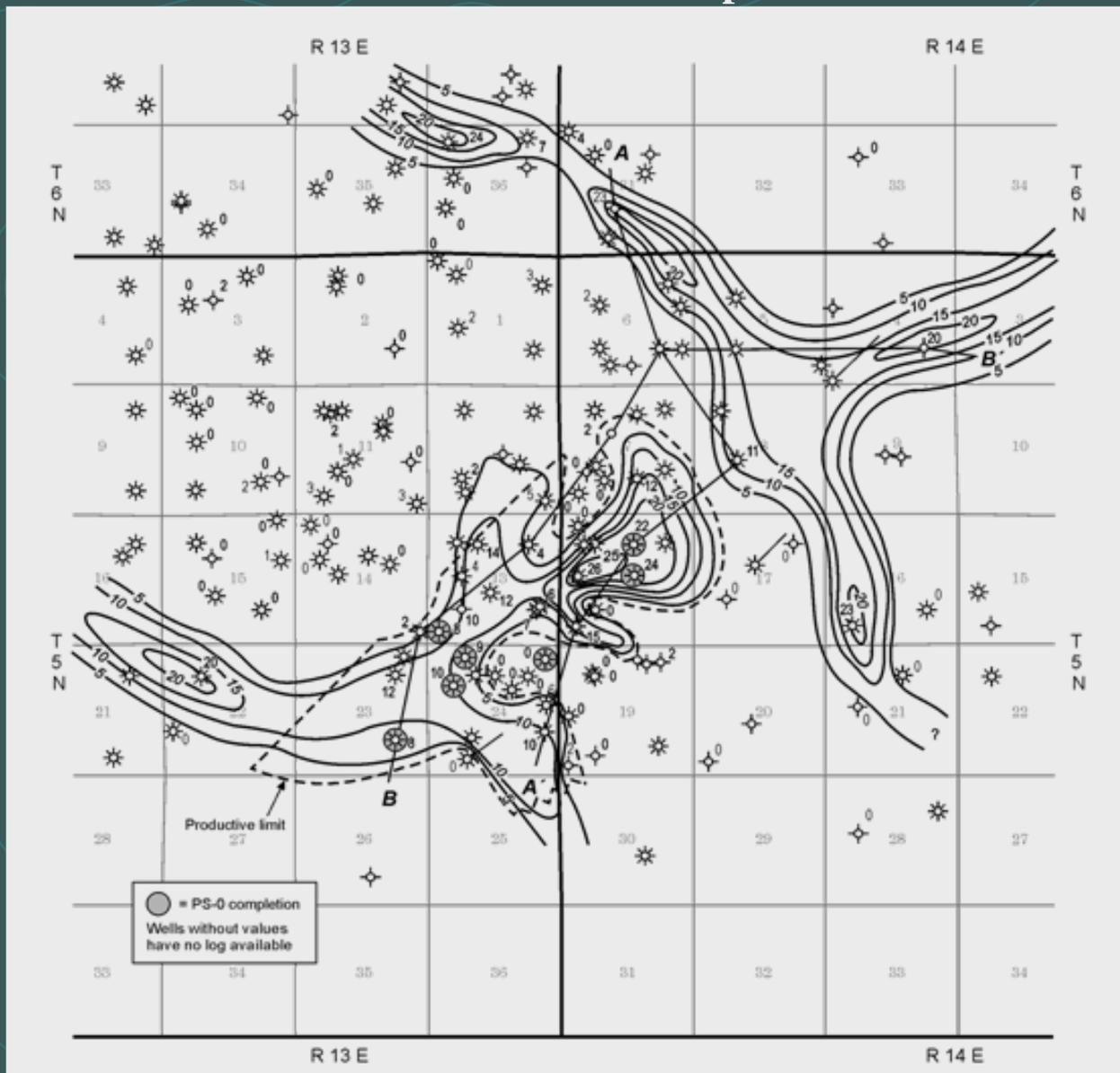
PS-1 Gross Sand Isopach





Pine Hollow South Field Study

PS-0 Net Sand Isopach





Pine Hollow South Field Study Stratigraphic Cross-Section A-A'

SP 2005-1, PLATES 15 and 16 of 16
Pine Hollow South Field Stratigraphic Cross Section A-A' and B-B'
Booch Gas Play in Southeastern Oklahoma

OKLAHOMA GEOLOGICAL SURVEY
Charles J. Mankin, Director

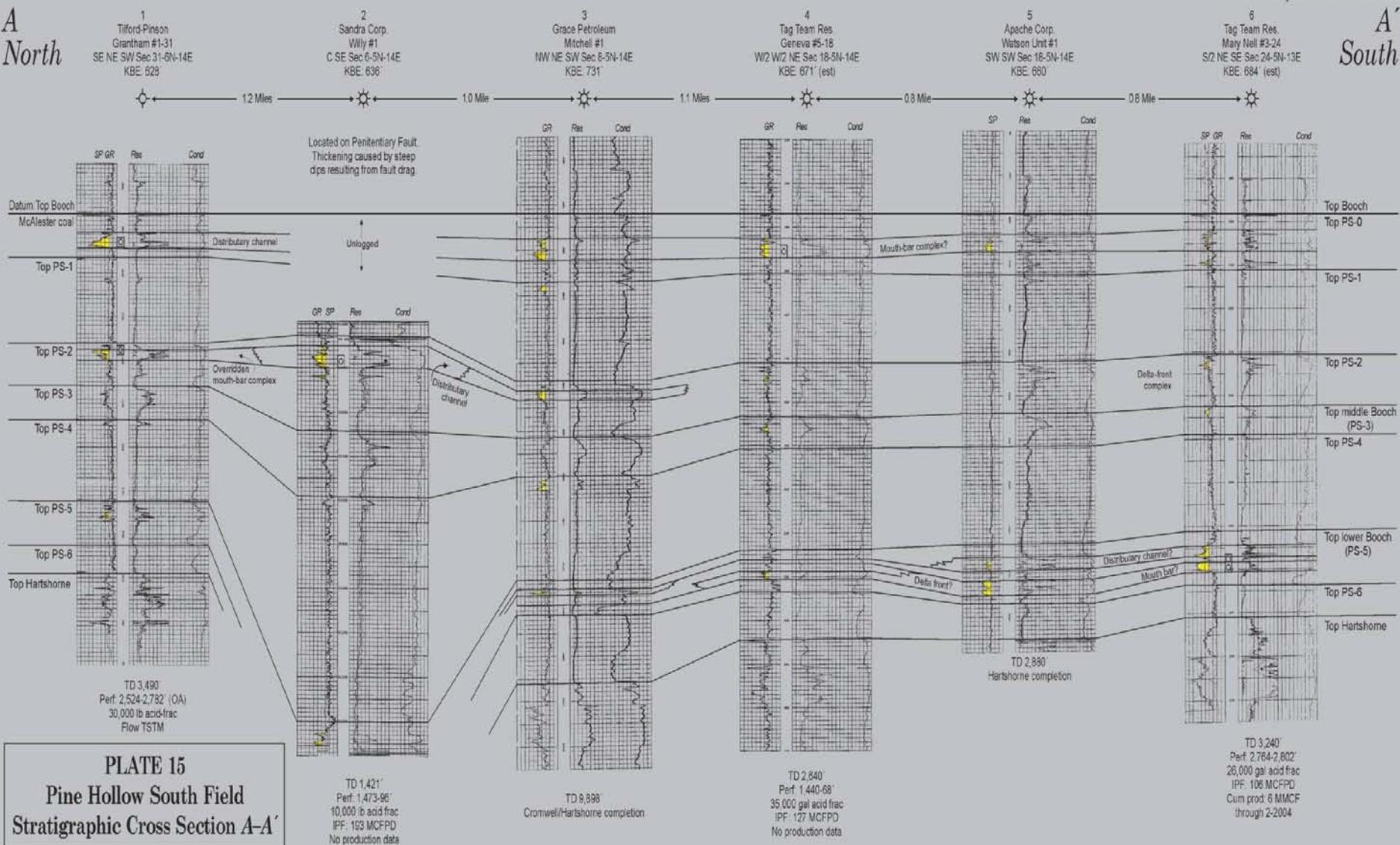


PLATE 15
Pine Hollow South Field
Stratigraphic Cross Section A-A'



Pine Hollow South Field Production

TABLE 7. — Pine Hollow South Field (Study Area) Booch Production

Operator name	Lease name	Well no.	Location	Gas cum. Status (MCF)	EUR ^a (MMCF)			Production (MCF)				
					All Booch	PS-0	PS-5	PS no. ^b	YTD	Latest month	First prod. date	
Tag Team Resources LLC	Frank	1	sec. 13, T5N, R13E SW SW SW	ACT	5,229	50	50	0	189	189	2002/02	
Tag Team Resources LLC	Sandra	1	sec. 13, T5N, R13E C NE	ACT	130,848	225		225	5	1,569	1,569	2000/04
Marbet LLC	Marbet LLC	31	sec. 14, T5N, R13E SE SE SE	ACT	71,342	275		275	5	9,512	3,135	2002/05
Marbet LLC	Marbet LLC	25	sec. 23, T5N, R13E C SE	ACT	54,576	50	50		0, (H) ^c	2,345	1,114	2001/07
Tag Team Resources LLC	Nell Mary	6	sec. 24, T5N, R13E NE SW NW	ACT	349	50	50		0, 1	349	349	2003/12
Tag Team Resources LLC	Nell Mary	2	sec. 24, T5N, R13E C NE NE	ACT	29,335	125	125		0	1,439	1,439	2002/11
Tag Team Resources LLC	Nell Mary	1	sec. 24, T5N, R13E NW NE NW	ACT	27,557	150	150		0, 1	1,843	1,843	2002/11
Tag Team Resources LLC	Nell Mary	3	sec. 24, T5N, R13E S NE SE	ACT	7,962	75		75	5	941	941	2003/01
Tag Team Resources LLC	Watkins Blake	1	sec. 7, T5N, R14E S N SW	ACT	59,377	100		100	5	364	364	1991/01
Tag Team Resources LLC	Geneva	4	sec. 18, T5N, R14E SW SW NE	ACT	7,731	25	25		0	247	247	2002/03
Tag Team Resources LLC	Watson	1	sec. 18, T5N, R14E C SW	ACT	645,357	250		250	5, (H) ^c	13,498	1,152	1981/08
Totals					1,039,663	1,375	450	925		32,296	12,342	

NOTE: Data from IHS Energy (through February 2004). EUR — estimated ultimate recovery.

^aEUR calculated using latest month's production 12 5 years. Many recent wells are not yet on production, making EURs provisional.

^bParasequence completed.

^cH — Hartshorne. Hartshorne commingled assigns 33% to Booch zone.



Pine Hollow South Field Study Volumetric Input

<u>Interval</u>	<u>Avg. Net Sd</u>	<u>Area (ac)</u>	<u>Avg. Por</u>	<u>Avg. Sg</u>	<u>Pore Vol (Ac. Ft.)</u>
<u>PS-0:</u>	10 ft	2,528	9%	75%	1,706
<u>PS-5:</u>	17 ft	1,952	10%	80%	2,655



Pine Hollow South Field Study Gas Volumes

<u>Interval</u>	<u>Gas IIP</u>	<u>Cum Prod</u>	<u>E.U.R.</u>	<u>Proj. R.F.</u>
<u>PS-0:</u>	1,264	88	450	36%
<u>PS-5:</u>	2,544	485	925	36%
<u>Total:</u>	3,808	573	1,375	Avg: 36%

Pine Hollow South Field Study

Lessons Learned



- **Evaluation Issues**

- **Keys to Viability**



General Conclusions





Conclusions: Stratigraphy

- Booch not equivalent to McAlester
- Records eight progradational cycles (all sourced from the north)
 - Lower Booch (2 cycles) most marine & poorest producer
 - Middle Booch (3 cycles) maximum progradation & best producer
 - Upper Booch (3 cycles) intermediate
- Reservoirs all sandstones (occurring at tops of cycles)
 - Best are channel-fills
 - Tidally reworked deltaics are poorer



Conclusions: Petroleum System

- Booch marine shales and coals are the dominant source rocks
 - Gas prone
 - Somewhat immature (may explain under-filling)
- Migration
 - Most occurs from adjacent shales and coals
 - Longer distant possible via channel sands (Brooken)
 - Cross-fault from Hartshorne - Atoka and deeper possible
- Stratigraphy the key to economic entrapment



Conclusions: Evaluation

- Challenges

- Volumetrics of limited value
- Complex reservoir geometry
- Few penetrations per accumulation
- Production allocation issues (commingling)
- Fuzzy line defining potential reservoir and pay
- Under-pressure requires early compression

- Exploration

- Many opportunities (in high-price environment)
- Drilling shallow and cheap
- Entirely subsurface play (will reward detailed analysis)
- Most reservoirs of limited aerial extent (easy to miss)
- Underlying Hartshorne excellent secondary objective



Acknowledgements

Max Tilford

Neil Suneson

Rick Andrews



Don't forget the Booch Field Trip March 4-5, 2009

