



**Joshua R. Austin**  
**Petroleum Geologist**  
report for  
**Thomas Garner, Inc.**



**COMPANY:** Thomas Garner, Inc.

**LEASE:** Dennis #1

**FIELD:** Leiss Northwest

**LOCATION:** 416' FSL & 1733' FEL (NW-SE-SW-SE)

**SEC:** 15    **TWSP:** 25s    **RGE:** 13w

**COUNTY:** Stafford    **STATE:** Kansas

**KB:** 1938'    **GL:** 1927'

**API #** 15-185-24005-00-00

**CONTRACTOR:** Sterling Drilling Company (Rig #4)

**Spud:** 11/24/2017                      **Comp:** 12/01/2017

**RTD:** 4282'                              **LTD:** 4274'

**Mud Up:** 3081'                              **Type Mud:** Chemical was displaced

**Samples Saved From:** 3400' to RTD

**Drilling Time Kept From:** 3400' to RTD

**Samples Examined From:** 3400' to RTD

**Geological Supervision From:** 3400' to RTD

**Geologist on Well:** Josh Austin

**Surface Casing:** 8 5/8" @ 321'

**Production Casing:** 5 1/2" @ 4276'

**Electronic Surveys:** Pioneer Energy Services

**NOTES**

On the basis of the high structural position, positive drill stem test and after reviewing the electric logs it was recommended by all parties involved in the Dennis #1 to run 5 1/2" production casing to open hole complete the Arbuckle. Before plugging the well the following zones should be tested:

Simspon Sand 4210-4218  
Viola 4098-4102  
Lansing 'H' 3798-3804

**Thomas Garner, Inc**

# well comparison sheet

DRILLING WELL					COMPARISON WELL				COMPARISON WELL				COMPARISON WELL				
Dennis #1					Teichman #1-15 NW-NE-SE Sec 15-25s-13w				McCandless NW-NE-NE Sec 22-25s-13w				Roy Russell #2 SW-NE-SE Sec 15-25s-13w				
1938 KB					1933 KB				1927 KB				1931 KB				
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log	
Anhydrite	786	1152	N/A	N/A	782	1151	1							779	1148	4	
Heebner	3486	-1548	3486	-1548	3483	-1550	2	2	3484	-1557	9	9		3484	-1557	9	9
Toronto	3504	-1566	3502	-1564	3500	-1567	1		3504	-1577	11						
Douglas	3526	-1588	3523	-1585	3521	-1588	0										
Brown Lime	3636	-1698	3631	-1693	3630	-1697	-1	4									
Lansing	3666	-1728	3662	-1724	3661	-1728	0	4	3662	-1735	7	11		3660	-1733	5	9
BKC	3946	-2008	3944	-2006	3943	-2010	2	4	3937	-2010	2	4					
Mississippi	4023	-2085	4024	-2086	4024	-2091	6	5									
Viola	4084	-2146	4083	-2145	4082	-2149	3	4	4111	-2184	38	39		4089	-2162	16	17
Simpson Shale	4196	-2258	4204	-2266	4203	-2270	12	4	4200	-2273	15	7		4264	-2337	79	71
Simpson Sand	4209	-2271	4210	-2272	4212	-2279	8	7	4213	-2286	15	14					
Arbuckle	4276	-2338	N/A	N/A	4277	-2344	6	N/A						4324	-2397	59	N/A
Total Depth	4282	-2344	4274	-2336	4280	-2347			4252	-2325				4353	-2426		



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Thomas Garner

**15/25S/13W Stafford, KS**

**Dennis #1**

Job Ticket: 62013

DST#: 1

ATTN:

Test Start: 2017.11.29 @ 07:06:00

### GENERAL INFORMATION:

Formation:	Viola	Test Type:	Conventional Bottom Hole (Initial)
Deviated:	No Whipstock:	ft (KB)	
Time Tool Opened:	09:42:20	Tester:	Jimmy Ricketts
Time Test Ended:	14:50:09	Unit No:	80
Interval:	4100.00 ft (KB) To 4135.00 ft (KB) (TVD)	Reference Elevations:	1938.00 ft (KB)
Total Depth:	4135.00 ft (KB) (TVD)		1927.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition:	Fair
		KB to GR/CF:	11.00 ft

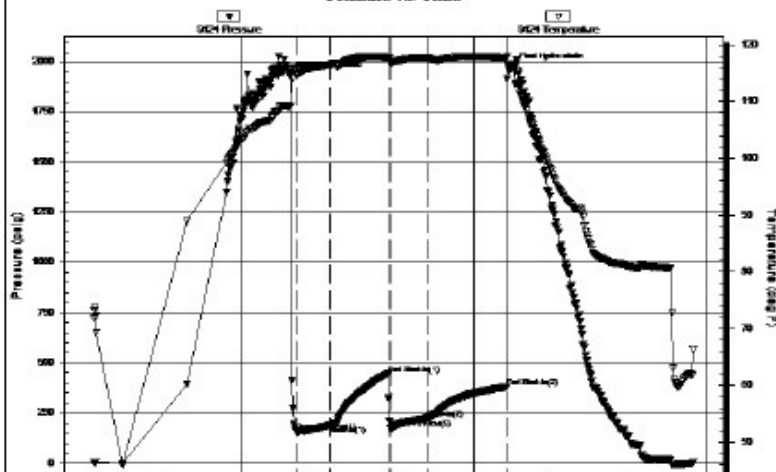
### Serial #: 9124

Inside

Press@RunDepth:	221.98 psig @	4101.00 ft (KB)	Capacity:	8000.00 psig
Start Date:	2017.11.29	End Date:	2017.11.29	Last Calib.:
Start Time:	07:06:05	End Time:	14:50:09	Time On Btm:
				2017.11.29 @ 09:37:50
				Time Off Btm:
				2017.11.29 @ 12:30:00

**TEST COMMENT:** IF - Strong blow throughout initial flow period. Gas to surface 6 minutes into initial flow period.  
 IS - 3 inch blow back during initial shut-in period.  
 FF - Strong blow throughout final flow period.  
 FS - 5 inch blow back during final shut-in period.

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1928.22	109.18	Initial Hydro-static
5	153.60	114.83	Open To Flow (1)
32	185.83	116.48	Shut-In(1)
76	444.21	117.66	End Shut-In(1)
79	170.57	116.69	Open To Flow (2)
107	221.98	117.66	Shut-In(2)
168	377.62	117.74	End Shut-In(2)
173	1966.98	116.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
315.00	Gassy oil cut mud 15%G 17%M & 68%O	2.45
160.00	Gassy clean oil 100%O	2.24
0.00	GTS	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.25	7.00	33.95
Last Gas Rate	0.13	11.00	9.51
Max. Gas Rate	0.13	11.00	9.51



**TRILOBITE TESTING, INC.**

DRILL STEM TEST REPORT

Thomas Garner

15/25S/13W Stafford, KS

St. John, KS  
67576-1652

Dennis #1

Job Ticket: 62014

DST#: 2

ATTN: Tom Garner/Josh Aust

Test Start: 2017.11.30 @ 05:06:02

GENERAL INFORMATION:

Formation: Simpson Sand

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:14:22

Time Test Ended: 12:24:11

Test Type: Conventional Bottom Hole (Initial)

Tester: Jimmy Ricketts

Unit No: 80

Interval: 4182.00 ft (KB) To 4246.00 ft (KB) (TVD)

Total Depth: 4246.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1938.00 ft (KB)

1927.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 9124

Inside

Press@RunDepth: 204.49 psig @ 4183.00 ft (KB)

Start Date: 2017.11.30

End Date: 2017.11.30

Start Time: 05:06:07

End Time: 12:24:11

Capacity: 8000.00 psig

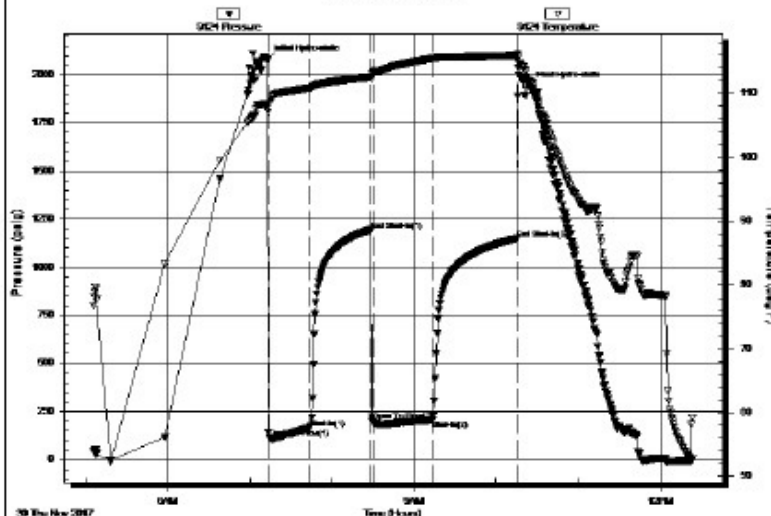
Last Calib.: 1899.12.30

Time On Btm: 2017.11.30 @ 07:13:02

Time Off Btm: 2017.11.30 @ 10:24:11

TEST COMMENT: IF - Weak blow building to strong blow 26 minutes into initial flow period.  
IS - Surface blow back during initial shut-in period.  
FF - Weak blow building to strong blow 20 minutes into final flow period.  
FS - 5 inch blow back during final shut-in period.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2075.68	108.33	Initial Hydro-static
2	111.55	108.30	Open To Flow (1)
31	164.26	110.92	Shut-In(1)
76	1192.14	112.54	End Shut-In(1)
77	199.06	113.15	Open To Flow (2)
121	204.49	115.47	Shut-In(2)
183	1149.24	115.94	End Shut-In(2)
192	1938.99	111.89	Final Hydro-static

Recovery

Gas Rates

Recovery

Length (ft)	Description	Volume (bbl)
125.00	GO&HMCW 7%G 2%O 47%W 44%M	0.61
125.00	GO&HWCM 11%G 6%O 22%W 61%M	0.92
65.00	VGHOCM 51%G 21%O 28%M	0.91
305.00	Gas in pipe 100%G	4.28

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE TESTING, INC.**

## DRILL STEM TEST REPORT

Thomas Garner  
 305 East 7th  
 St. John, KS  
 67576-1652  
 ATTN: Tom Garner/Josh Aust

**15/25S/13W Stafford, KS**  
**Dennis #1**  
 Job Ticket: 62015      DST#: 3  
 Test Start: 2017.11.30 @ 21:31:00

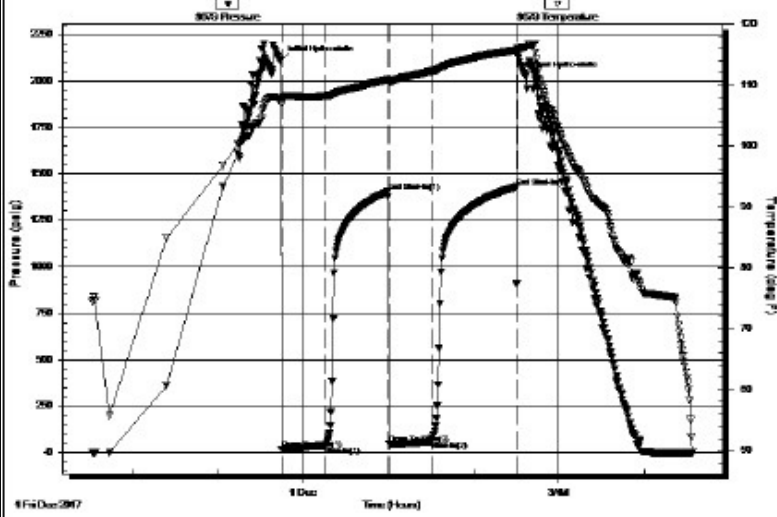
**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock:      ft (KB)  
 Time Tool Opened: 23:44:30  
 Time Test Ended: 04:34:20  
 Interval: 4276.00 ft (KB) To 4282.00 ft (KB) (TVD)  
 Total Depth: 4282.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Jimmy Ricketts  
 Unit No: 80  
 Reference Elevations: 1938.00 ft (KB)  
 1927.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8679**      Outside  
 Press@RunDepth: 61.85 psig @ 4277.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2017.11.30      End Date: 2017.12.01      Last Calib.: 1899.12.30  
 Start Time: 21:31:05      End Time: 04:34:20      Time On Btm: 2017.11.30 @ 23:43:40  
 Time Off Btm: 2017.12.01 @ 02:36:39

TEST COMMENT: IF - Weak blow building to 7 inches initial flow period.  
 FF - Weak blow building to 6 inches final flow period.

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2107.02	107.96	Initial Hydro-static
1	19.56	106.76	Open To Flow (1)
32	38.62	108.20	Shut-In(1)
76	1403.92	110.92	End Shut-In(1)
77	44.75	110.56	Open To Flow (2)
107	61.85	112.26	Shut-In(2)
167	1429.51	115.75	End Shut-In(2)
173	2020.80	116.21	Final Hydro-static

Recovery

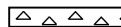








Length (ft)	Description	Volume (bbl)
15.00	Heavy oil cut mud 44%O 56%M	0.07
110.00	Clean oil 100%O	0.54

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

110.00	Clear Oil 100%O	0.34

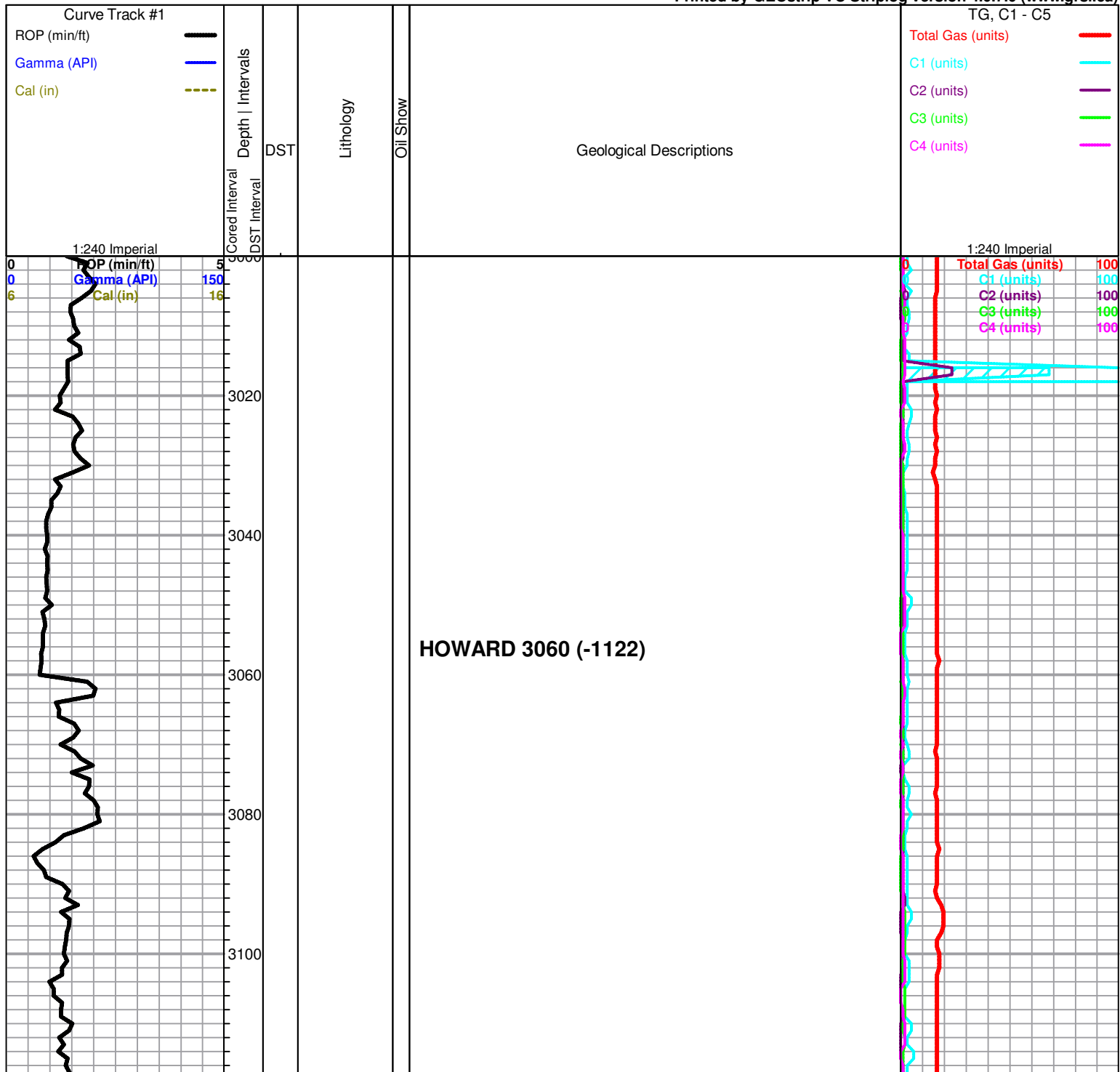
**ROCK TYPES**

 Cht	 Dolsec	 shale, grn	 Carbon Sh	 Slstst
 Cht vari	 Lmst fw7>	 shale, gry	 Ss	

**OTHER SYMBOLS**

- DST**
-  DST Int
  -  DST alt
  -  Core
  -  tail pipe

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)

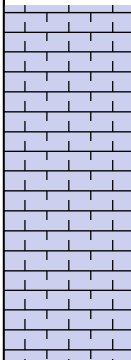


3120  
3140  
3160  
3180  
3200  
3220  
3240  
3260  
3280  
3300  
3320

**TOPEKA 3150 (-1212)**

ROP (min/ft) 5  
Gamma (API) 150  
Cal (in) 16

Total Gas (units) 100  
C1 (units) 100  
C2 (units) 100  
C3 (units) 100  
C4 (units) 100



**Samples 3300'-RTD**

Limestone; cream-buff, fine xln, dense, slightly chert, poor visible porosity, no shows

