

**ARROW TESTING COMPANY**  
P. O. BOX 1051                      GREAT BEND, KANSAS 67530

**DRILL-STEM TEST DATA**

Well Name	Tammen	Test No.	1
Well Number	2	Zone Tested	Sand
Company	J.A. Allison	Date	1-19-91
Comp. Rep.	O.R. Phelps	Tester	Don Fabricius
Contractor	Woodman-Iannitti Drilling	Ticket No.	2902
Location	26-18-18	Elevation	

Recorder No. <u>3088</u>	Clock Range <u>12</u>	Recorder No. <u>4377</u>	Clock Range <u>12</u>
Depth <u>3712</u>		Depth <u>3716</u>	
Initial Hydro Mud Press. <u>1900</u>		Initial Hydro Mud Press. <u>1901</u>	
Initial Shut-in Press. <u>35</u>		Initial Shut-in Press. <u>35</u>	
Initial Flow Press. <u>22-22</u>		Initial Flow Press. <u>35-35</u>	
Final Flow Press. <u>22-22</u>		Final Flow Press. <u>35-35</u>	
Final Shut-in Press. <u>35</u>		Final Shut-in Press. <u>35-35</u>	
Final Hydro Mud Press. <u>1900</u>		Final Hydro Mud Press. <u>1901</u>	
Temperature <u>104</u>		Tool Open Before I. S. I. <u>30</u>	Mins.
Mud Weight <u>9.1</u>	Viscosity <u>42</u>	Initial Shut-in <u>30</u>	Mins.
Fluid Loss <u>10</u>		Flow Period <u>30</u>	Mins.
Interval Tested <u>3689-3720</u>		Final Shut-in <u>30</u>	Mins.
Top Packer Depth <u>3684</u>		Surface Choke Size <u>1"</u>	
Bottom Packer Depth <u>3689</u>		Bottom Choke Size <u>3/4"</u>	
Total Depth <u>3720</u>		Main Hole Size <u>7 7/8</u>	
Drill Pipe Size <u>4 1/2</u> X H	Wt. <u>16.60</u>	Rubber Size <u>6 3/4</u>	
Drill Collar I. D. _____	Ft. Run _____		
Recovery—Total Feet _____			
Recovered <u>2</u> Feet Of <u>mud</u>			
Recovered _____ Feet Of _____			
Recovered _____ Feet Of _____			
Recovered _____ Feet Of _____			

Remarks

Very weak blow dead in 8 min.

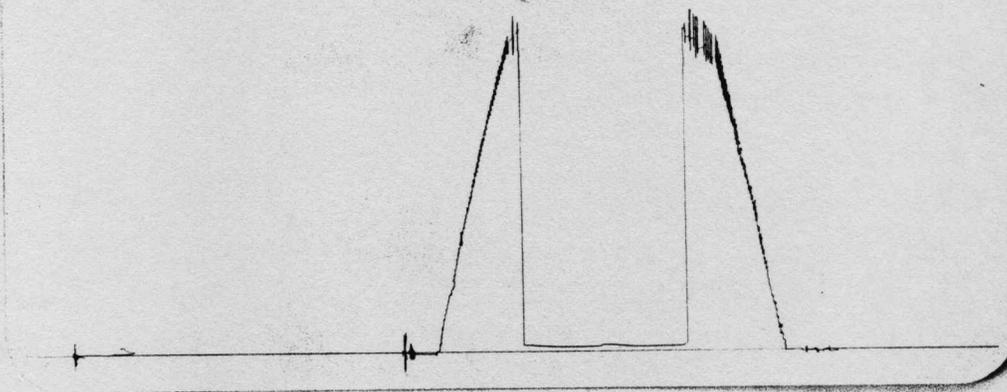
**THIS ORDER MUST BE SIGNED BEFORE WORK IS COMMENCED. CONDITIONS:** It is expressly understood and agreed that the above described work shall be done under the exclusive control, direction and supervision of the owner or contractor. As a part of the consideration for this agreement, it is expressly understood and agreed that Arrow Testing Company shall not be responsible for damages or losses of any kind whatsoever occasioned by or incident to the use of the above described Tools, whether run or operated by customer, or by anyone employed directly or indirectly by Arrow Testing Company, nor whether resulting from the acts or omissions of Arrow Testing Company, or any of its agents, servants or employees in any way connected with or related to the use of such Tools.

It is expressly understood and agreed that Arrow Testing Company, shall not be bound by any agreement, not herein contained, and no agent or representative connected with or employed by Arrow Testing Company has authority to alter or extend the terms of this agreement. I have read and understand the terms of this agreement and represent that I am authorized to sign the same as agent of customer.

By \_\_\_\_\_  
*Owner, Operator or his Agent*

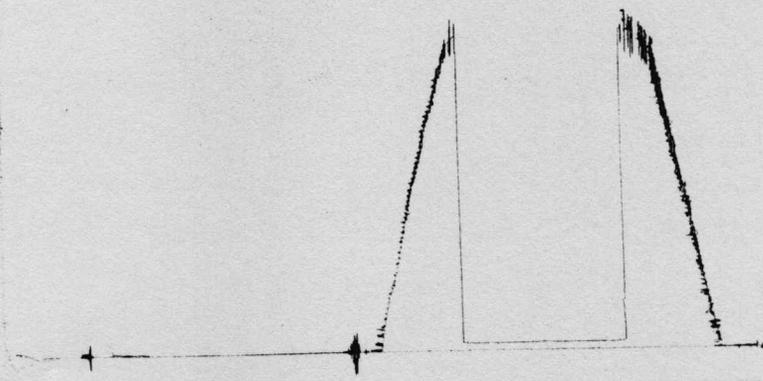
3088

2902



9577

2902



**ARROW TESTING COMPANY**  
P. O. BOX 1051                      GREAT BEND, KANSAS 67530

**DRILL-STEM TEST DATA**

Well Name	Tammen	Test No.	2
Well Number	2	Zone Tested	Arb
Company	J.A. Allison	Date	1-19-91
Comp. Rep.	O.R. Phelps	Tester	Don Fabricius
Contractor	Woodman-Iannitti Drilling	Ticket No.	2903
Location	26-18-18	Elevation	

Recorder No. <u>3088</u>	Clock Range <u>12</u>	Recorder No. <u>4377</u>	Clock Range <u>12</u>
Depth <u>3732</u>		Depth <u>3936</u>	
Initial Hydro Mud Press. <u>1912</u>		Initial Hydro Mud Press. <u>1913</u>	
Initial Shut-in Press. <u>94</u>		Initial Shut-in Press. <u>105</u>	
Initial Flow Press. <u>58-58</u>		Initial Flow Press. <u>58-58</u>	
Final Flow Press. <u>58-58</u>		Final Flow Press. <u>58-58</u>	
Final Shut-in Press. <u>58</u>		Final Shut-in Press. <u>58</u>	
Final Hydro Mud Press. <u>1912</u>		Final Hydro Mud Press. <u>1913</u>	
Temperature <u>104</u>		Tool Open Before I. S. I. <u>30</u>	Mins.
Mud Weight <u>9.3</u>	Viscosity <u>45</u>	Initial Shut-in <u>30</u>	Mins.
Fluid Loss <u>11</u>		Flow Period <u>30</u>	Mins.
Interval Tested <u>3689-3740</u>		Final Shut-in <u>30</u>	Mins.
Top Packer Depth <u>3684</u>		Surface Choke Size <u>1"</u>	
Bottom Packer Depth <u>3689</u>		Bottom Choke Size <u>3/4"</u>	
Total Depth <u>3740</u>		Main Hole Size <u>7 7/8</u>	
Drill Pipe Size <u>4½ X H</u>	Wt. <u>16.60</u>	Rubber Size <u>6 3/4</u>	
Drill Collar I. D. _____	Ft. Run _____		
Recovery—Total Feet _____			
Recovered <u>5</u> Feet Of <u>mud with trace of oil on top</u>			
Recovered _____ Feet Of _____			
Recovered _____ Feet Of _____			
Recovered _____ Feet Of _____			

Remarks

Very weak blow dead in 13 min.

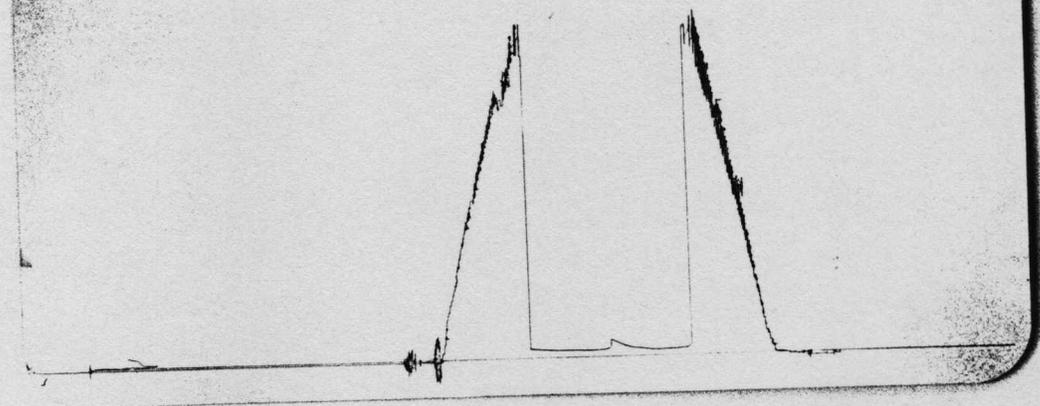
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By \_\_\_\_\_  
*Owner, Operator or his Agent*

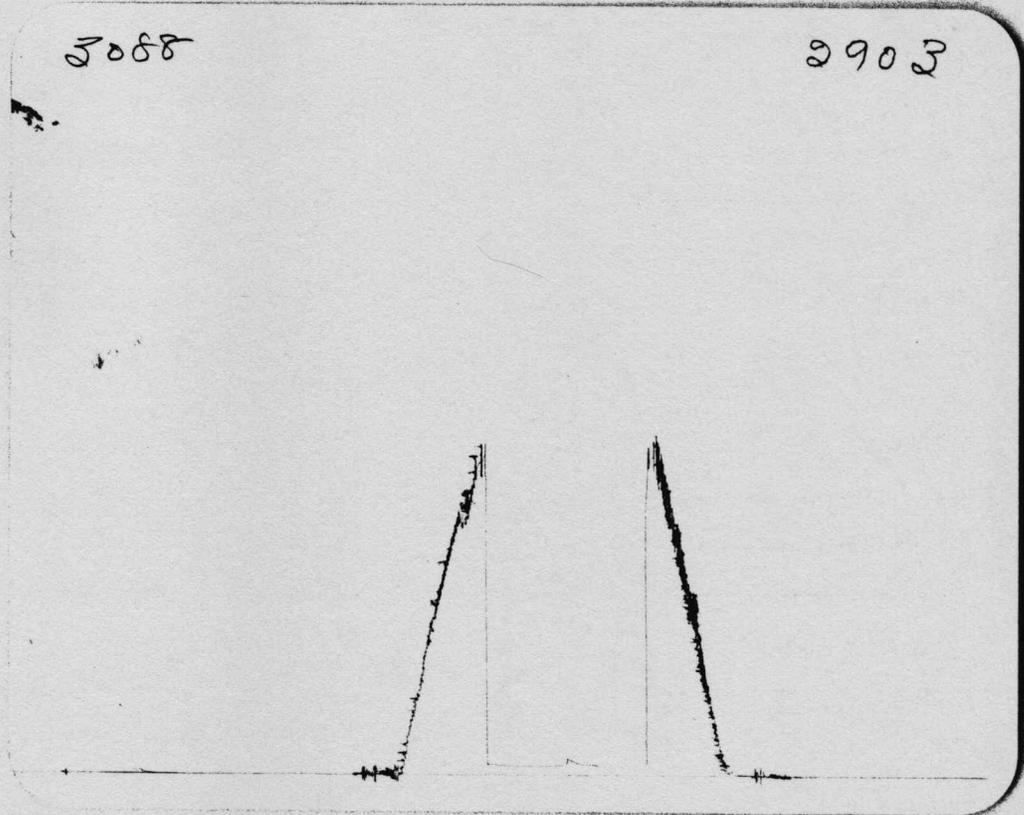
4377

2903



5088

2903



**ARROW TESTING COMPANY**  
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**DRILL-STEM TEST DATA**

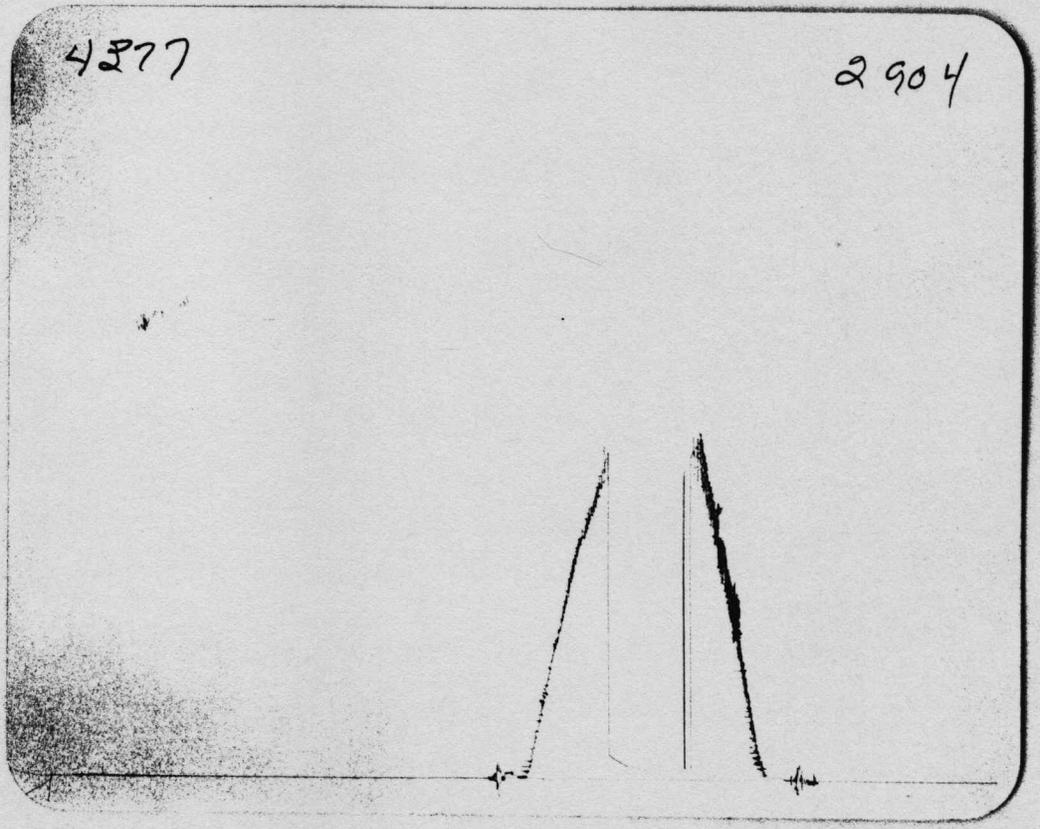
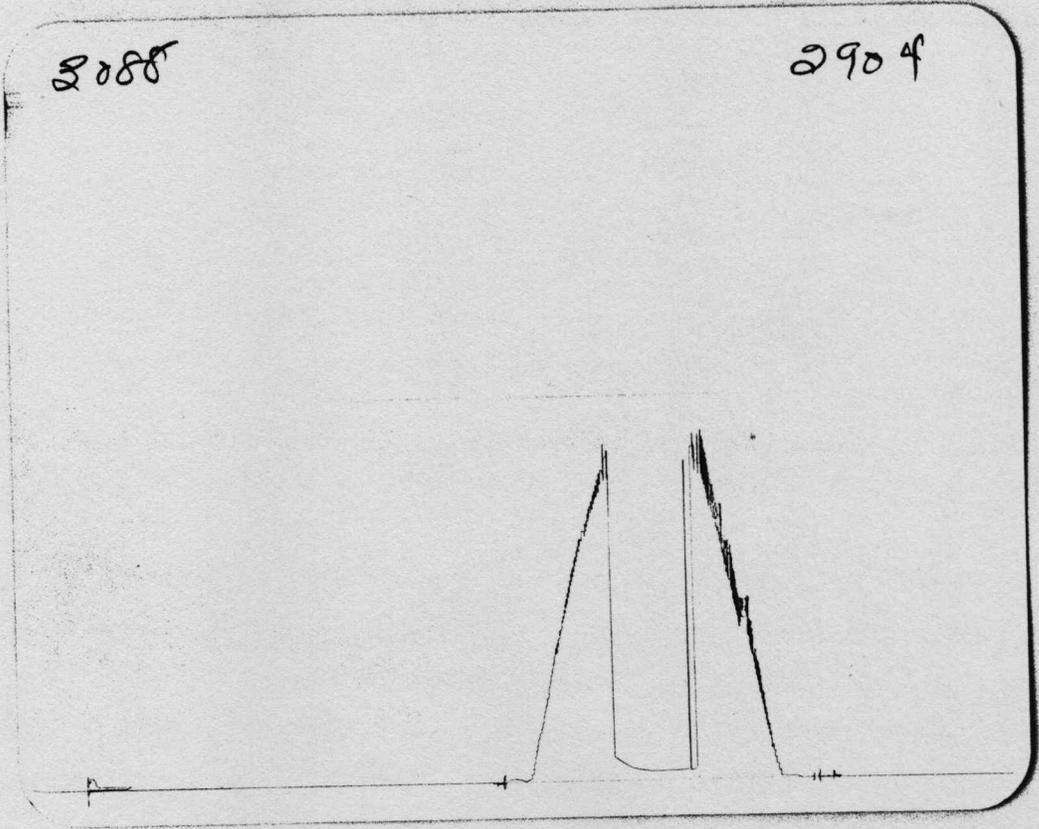
Well Name	Tammen	Test No.	3
Well Number	2	Zone Tested	Arb
Company	J.A. Allison	Date	1-20-91
Comp. Rep.	O.R. Phelps	Tester	Don Fabricius
Contractor	Woodman-Iannitti Drilling	Ticket No.	2904
Location	26-18-18	Elevation	

Recorder No. <u>3088</u>	Clock Range <u>12</u>	Recorder No. <u>4377</u>	Clock Range <u>12</u>
Depth <u>3737</u>		Depth <u>3741</u>	
Initial Hydro Mud Press. <u>1923</u>		Initial Hydro Mud Press. <u>1924</u>	
Initial Shut-in Press. <u>152</u>		Initial Shut-in Press. <u>164</u>	
Initial Flow Press. <u>58</u>		Initial Flow Press. <u>58-58</u>	
Final Flow Press. _____		Final Flow Press. _____	
Final Shut-in Press. _____		Final Shut-in Press. _____	
Final Hydro Mud Press. <u>1923</u>		Final Hydro Mud Press. <u>1924</u>	
Temperature <u>104</u>		Tool Open Before I. S. I. <u>30</u>	Mins.
Mud Weight <u>9.3</u>	Viscosity <u>50</u>	Initial Shut-in <u>30</u>	Mins.
Fluid Loss <u>11.8</u>		Flow Period _____	Mins.
Interval Tested <u>3689-3745</u>		Final Shut-in _____	Mins.
Top Packer Depth <u>3684</u>		Surface Choke Size <u>1"</u>	
Bottom Packer Depth <u>3689</u>		Bottom Choke Size <u>3/4"</u>	
Total Depth <u>3745</u>		Main Hole Size <u>7 7/8</u>	
Drill Pipe Size <u>4 1/2</u> X H. Wt. <u>16.60</u>		Rubber Size <u>6 3/4</u>	
Drill Collar I. D. _____	Ft. Run _____		
Recovery—Total Feet _____			
Recovered <u>5</u> Feet Of <u>mud with spots of oil on top</u>			
Recovered _____ Feet Of _____			
Recovered _____ Feet Of _____			
Recovered _____ Feet Of _____			
Remarks			
	<u>Very weak blow dead in 2 min. - flushed tool</u>		
	<u>Very weak blow 30 seconds</u>		

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By \_\_\_\_\_  
*Owner, Operator or his Agent*



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**DRILL-STEM TEST DATA**

Well Name	Tammen	Test No.	4
Well Number	2	Zone Tested	Arb
Company	J.A. Allison	Date	1-21-91
Comp. Rep.	O.R. Phelps	Tester	Don Fabricius
Contractor	Woodman-Iannitti Drilling	Ticket No.	2905
Location	26-18-18	Elevation	

Recorder No. 3088    Clock Range 12    Recorder No. 4377    Clock Range 12  
Depth 3742                      Depth 3746  
Initial Hydro Mud Press. 1923                      Initial Hydro Mud Press. 1924  
Initial Shut-in Press. 117                      Initial Shut-in Press. 117  
Initial Flow Press. 58-58                      Initial Flow Press. 58-58  
Final Flow Press. \_\_\_\_\_                      Final Flow Press. \_\_\_\_\_  
Final Shut-in Press. \_\_\_\_\_                      Final Shut-in Press. \_\_\_\_\_  
Final Hydro Mud Press. 1923                      Final Hydro Mud Press. 1924  
Temperature 104                      Tool Open Before I. S. I. 30                      Mins.  
Mud Weight 9.3    Viscosity 45                      Initial Shut-in 30                      Mins.  
Fluid Loss 15                      Flow Period \_\_\_\_\_                      Mins.  
Interval Tested 3689-3750                      Final Shut-in \_\_\_\_\_                      Mins.  
Top Packer Depth 3684                      Surface Choke Size 1"  
Bottom Packer Depth 3689                      Bottom Choke Size 3/4"  
Total Depth 3750                      Main Hole Size 7 7/8  
Drill Pipe Size 4 1/2 X H. Wt. 16.60                      Rubber Size 6 3/4  
Drill Collar I. D. \_\_\_\_\_ Ft. Run \_\_\_\_\_  
Recovery—Total Feet \_\_\_\_\_  
Recovered \_\_\_\_\_ Feet Of \_\_\_\_\_

Remarks

Very weak blow dead in 15 min.

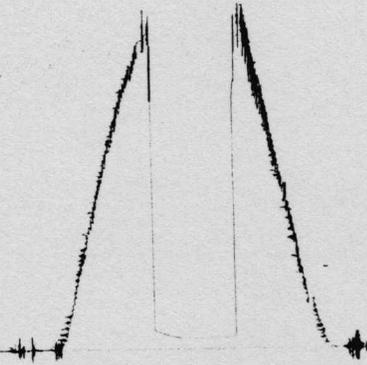
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By \_\_\_\_\_  
*Owner, Operator or bis Agent*

4277

2905



5088

2905

