



Home Office: Great Bend, Kansas

P. O. Box 793

(316) 793-7903

Company Abercrombie Drilling Inc. Lease & Well No. Patton #1
Elevation 2997 Kelly Bushings Formation Lansing Effective Pay _____ Ft. Ticket No. 15881
Date Nov. 27, 1971 Sec. 23 Twp. 4 Range 20W County Phillips State Kansas
Test Approved by Jack K. Wharton Western Representative James W. Holloway

Formation Test No. 1 O.K. ☒ Misrun _____ Interval Tested From 3277' to 3323' Total Depth 3323'
Size Main Hole 7 7/8" Rat Hole _____ Conv. ☒ B.T. _____ Damaged _____ Yes ☒ No Conv. _____ B.T. ☒ Damaged _____ Yes ☒ No
Packer Depth 3272 Ft. Size 6 3/4" Packer Depth 3277 Ft. Size 6 3/4"
Straddle _____ Yes _____ No ☒ Conv. _____ B.T. _____ Damaged _____ Yes _____ No

Packer Depth _____ Ft. Size _____
Tool Size 5 1/2" O.D. Tool Jt. Size 4 1/2" F.H. Anchor Length 46 Ft. Size 5 1/2" O.D.

RECORDERS	Depth <u>3315</u> Ft.	Clock No. <u>9725</u>	Depth <u>3317</u> Ft.	Clock No. <u>6774</u>
Top Make <u>Kuster</u> Cap. <u>4150</u> No. <u>2607</u>	Inside _____ Outside _____	Bottom Make <u>Kuster</u> Cap. <u>4150</u> No. <u>969</u>	Inside _____ Outside _____	
Below Straddle: Depth _____ Clock No. _____	Inside _____ Outside _____	Depth _____ Ft. Clock No. _____	Inside _____ Outside _____	
Top Make _____ Cap. _____ No. _____	Inside _____ Outside _____	Bottom Make _____ Cap. _____ No. _____	Inside _____ Outside _____	

Time Set Packer 11:04 A. M.
Tool Open I.F.P. From 11:04 M. to 11:17 M. Hr. 10 Min. From (B) 55 P.S.I. To (C) 55 P.S.I.
Tool Closed I.C.I.P. From 11:17 M. to 11:47 M. Hr. 30 Min. (D) 1016 P.S.I.
Tool Open F.F.P. From 11:47 M. to 12:47 P. Hr. 1 Min. From (E) 73 P.S.I. To (F) 112 P.S.I.
Tool Closed F.C.I.P. From 12:47 P. to 1:32 P. Hr. 45 Min. (G) 985 P.S.I.
Initial Hydrostatic Pressure (A) 1821 P.S.I. Final Hydrostatic Pressure (H) 1808 P.S.I.

SURFACE	Size Choke <u>3/8</u> In.	Max. Press. P.S.I.	Time	Description of Flow
INFORMATION	_____	_____	M.	_____
	_____	_____	M.	_____
	_____	_____	M.	_____

BLOW Good increasing to strong Bottom Choke Size 3/4 In.
Did Well Flow _____ Yes ☒ No _____ Recovery Total Ft. 180 feet oil cut mud (25% oil & 75% solids)

Reversed Out _____ Yes _____ No _____ Mud Type Chem Viscosity 45 Weight 10.5 Water Loss 10.8 cc. Maximum Temp. 92 °F
Type Circ. Sub. Plug Did Tool Plug? No Jars: Size _____ Make _____ Ser. No. _____
EXTRA EQUIPMENT: Dual Packers Yes Safety Joint _____ Did Packer Hold? Yes Where? _____
Length Drill Pipe 1760 ft. I.D. Drill Pipe 3.2 in. Length Weight Pipe 1497 ft. I.D. Weight Pipe 2.7 in. Length Drill Collars _____ ft.
I. D. Drill Collars _____ in. Length D.S.T. Tool 66 ft.

Remarks

WESTERN TESTING CO., INC.

Pressure Data

Date November 27, 1971 Test Ticket No. 15881
 Recorder No. 2607 Capacity 4150 Location 3315 Ft.
 Clock No. 9725 Elevation 2097 Kelly Bushings Well Temperature 92 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1821</u> P.S.I.	Open Tool	<u>11:04 A.M.</u>	
B First Initial Flow Pressure	<u>55</u> P.S.I.	First Flow Pressure	<u>10</u> Mins.	<u>10</u> Mins.
C First Final Flow Pressure	<u>55</u> P.S.I.	Initial Closed-in Pressure	<u>30</u> Mins.	<u>30</u> Mins.
D Initial Closed-in Pressure	<u>1016</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>73</u> P.S.I.	Final Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
F Second Final Flow Pressure	<u>112</u> P.S.I.			
G Final Closed-in Pressure	<u>985</u> P.S.I.			
H Final Hydrostatic Mud	<u>1808</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: <u>2</u> Inc.		Breakdown: <u>10</u> Inc.		Breakdown: <u>12</u> Inc.		Breakdown: <u>15</u> Inc.	
of <u>3</u> mins. and a		of <u>3</u> mins. and a		of <u>5</u> mins. and a		of <u>3</u> mins. and a	
final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>55</u>	<u>0</u>	<u>55</u>	<u>0</u>	<u>73</u>	<u>0</u>	<u>112</u>
P 2 <u>5</u>	<u>55</u>	<u>3</u>	<u>662</u>	<u>5</u>	<u>74</u>	<u>3</u>	<u>334</u>
P 3 <u>10</u>	<u>55</u>	<u>6</u>	<u>841</u>	<u>10</u>	<u>75</u>	<u>6</u>	<u>633</u>
P 4 _____		<u>9</u>	<u>901</u>	<u>15</u>	<u>77</u>	<u>9</u>	<u>770</u>
P 5 _____		<u>12</u>	<u>942</u>	<u>20</u>	<u>80</u>	<u>12</u>	<u>830</u>
P 6 _____		<u>15</u>	<u>966</u>	<u>25</u>	<u>85</u>	<u>15</u>	<u>866</u>
P 7 _____		<u>18</u>	<u>985</u>	<u>30</u>	<u>88</u>	<u>18</u>	<u>895</u>
P 8 _____		<u>21</u>	<u>994</u>	<u>35</u>	<u>90</u>	<u>21</u>	<u>914</u>
P 9 _____		<u>24</u>	<u>1004</u>	<u>40</u>	<u>95</u>	<u>24</u>	<u>928</u>
P10 _____		<u>27</u>	<u>1010</u>	<u>45</u>	<u>99</u>	<u>27</u>	<u>942</u>
P11 _____		<u>30</u>	<u>1016</u>	<u>50</u>	<u>104</u>	<u>30</u>	<u>954</u>
P12 _____				<u>55</u>	<u>107</u>	<u>33</u>	<u>961</u>
P13 _____				<u>60</u>	<u>112</u>	<u>36</u>	<u>968</u>
P14 _____						<u>39</u>	<u>975</u>
P15 _____						<u>42</u>	<u>981</u>
P16 _____						<u>45</u>	<u>985</u>
P17 _____							
P18 _____							
P19 _____							
P20 _____							



WESTERN TESTING CO., INC.

GREAT BEND, KANSAS 67530

(316) 793-7903

FIELD EVALUATIONS

Ticket No. 15881

Date November 27, 1971

To Abercrombie Drilling Inc.

These calculations are based upon information furnished by you and taken from drill stem test pressure charts and are furnished for your information. In furnishing such calculations and evaluations, Western Testing Co., Inc. is merely expressing its opinion. You agree that The Testing Company makes no warranty as to the accuracy of such calculations or opinions and the Testing Company shall not be liable for any loss or damage, whether due to negligence or otherwise in connection with such calculations and opinions.

We Give Below Results of Drill Stem Evaluation

Lease Patton #1 Sec. 23 Twp. 4 Rge. 20W
County Phillips Test Interval 3277' - 3323'

FINAL

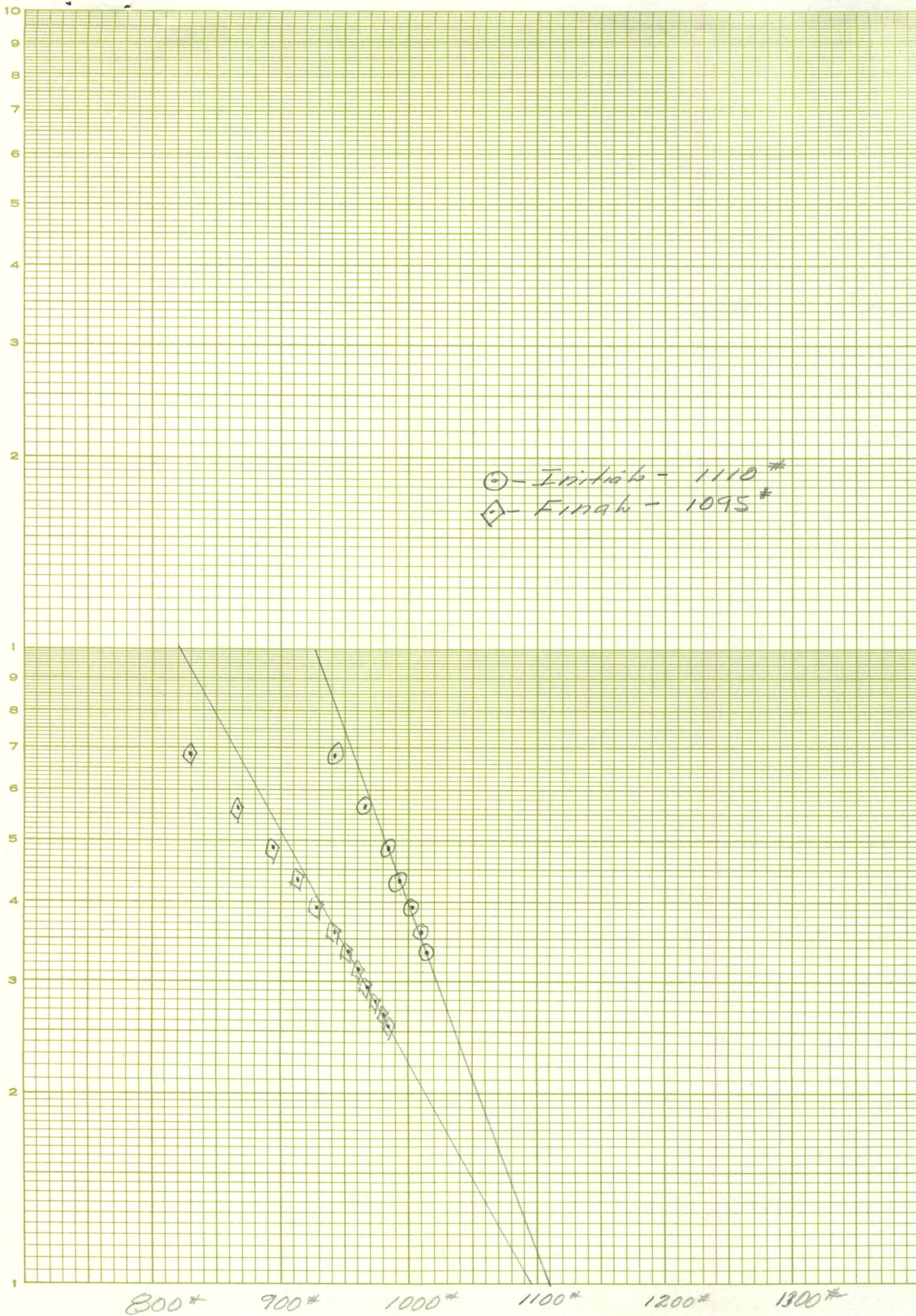
P.S.I. Slope Cycle
$$M = \frac{P_{isi} - P_{fsi}}{\log \frac{T + t}{t}}$$
 160

Damage Ratio
$$DR = .183 \frac{P_s - P_f}{M}$$
 1.7

Production
$$Q = \frac{1440 R}{t}$$
 24.27 Bbls./Hr.
1.01 Bbls./Day

Effective Pay
$$K_1 = \frac{Kh}{hl}$$
 30.0 Average Permeability Md. Ft.

Theoretical Potential With Damage Removed
$$Q_1 = Q DR$$
 41.26 Bbls./Day





This is an actual photograph of recorder chart.

POINT	PRESSURE		
	Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1826	1821	PSI
(B) First Initial Flow Pressure	53	55	PSI
(C) First Final Flow Pressure	53	55	PSI
(D) Initial Closed-in Pressure	987	1016	PSI
(E) Second Initial Flow Pressure	74	73	PSI
(F) Second Final Flow Pressure	106	112	PSI
(G) Final Closed-in Pressure	967	985	PSI
(H) Final Hydrostatic Mud	1805	1808	PSI



Home Office: Great Bend, Kansas
P. O. Box 793 (316) 793-7903

Company Abercrombie Drilling Inc. Lease & Well No. Patton #1
Elevation 2097 Kelly Bushings Formation Kansas City Effective Pay _____ Ft. Ticket No. 15882
Date 11-28-71 Sec. 23 Twp. 4S Range 20W County Phillips State Kansas
Test Approved by Jack K. Wharton Western Representative James W. Holloway
Formation Test No. 2 O.K. ☒ Misrun _____ Interval Tested From 3319' to 3345' Total Depth 3345'
Size Main Hole 7 7/8" Rat Hole _____ Conv. ☒ B.T. _____ Damaged _____ Yes ☒ No Conv. _____ B.T. ☒ Damaged _____ Yes ☒ No
Packer Depth 3314 Ft. Size 6 3/4 Packer Depth 3319 Ft. Size 6 3/4"
Straddle _____ Yes _____ No ☒ Conv. _____ B.T. _____ Damaged _____ Yes _____ No
Packer Depth _____ Ft. Size _____
Tool Size 5 1/2" O.D. Tool Jt. Size 4 1/2" F.H. Anchor Length 26 Ft. Size 5 1/2" O.D.
RECORDERS Depth 3337 Ft. Clock No. 9725 Depth 3339 Ft. Clock No. 6774
Top Make Kuster Cap. 4150 No. 2607 Inside Outside Bottom Make Kuster Cap. 4150 No. 969 ~~Inside~~ Outside
Below Straddle: Depth _____ Clock No. _____ Inside _____ Depth _____ Ft. Clock No. _____ Inside _____
Top Make _____ Cap. _____ No. _____ Outside _____ Bottom Make _____ Cap. _____ No. _____ Outside _____
Time Set Packer 12:49 A.M.
Tool Open I.F.P. From 12:52 M. to 1:02A. M. Hr. 10 Min. From (B) 56 P.S.I. To (C) 56 P.S.I.
Tool Closed I.C.I.P. From 1:02 M. to 1:32A. M. Hr. 30 Min. (D) 745 P.S.I.
Tool Open F.F.P. From 1:32 M. to 2:32A. M. 1 Hr. Min. From (E) 76 P.S.I. To (F) 97 P.S.I.
Tool Closed F.C.I.P. From 2:32 M. to 3:17A. M. Hr. 45 Min. (G) 526 P.S.I.
Initial Hydrostatic Pressure (A) 1770 P.S.I. Final Hydrostatic Pressure (H) 1770 P.S.I.
SURFACE Size Choke 3/8 In. Max. Press. P.S.I. _____ Time _____ Description of Flow _____
INFORMATION _____ M. _____
_____ M. _____
_____ M. _____
BLOW Fair increasing to good Bottom Choke Size 3/4 In.
Did Well Flow _____ Yes ☒ No _____ Recovery Total Ft. 150 feet muddy water
Reversed Out _____ Yes ☒ No _____ Mud Type Chem. Viscosity 50 Weight 10.4 Water Loss 7.6 cc. Maximum Temp. 94 °F
Type Circ. Sub. Plug Did Tool Plug? No Jars: Size _____ Make _____ Ser. No. _____
EXTRA EQUIPMENT: Dual Packers Yes Safety Joint No Did Packer Hold? Yes Where? _____
Length Drill Pipe 1802 ft. I.D. Drill Pipe 3.3 in. Length Weight Pipe 1497 ft. I.D. Weight Pipe 2.7 in. Length Drill Collars _____ ft.
I. D. Drill Collars _____ in. Length D.S.T. Tool 46 ft.
Remarks _____

WESTERN TESTING CO., INC.

Pressure Data

Date 11-28-71 Test Ticket No. 15882
 Recorder No. 2607 Capacity 4150 Location 3337 Ft.
 Clock No. 9725 Elevation 2097 Kelly Bushings Well Temperature 94 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>1770</u> P.S.I.	Open Tool	<u>12:49A.</u> M	
B First Initial Flow Pressure	<u>56</u> P.S.I.	First Flow Pressure	<u>10</u> Mins.	<u>10</u> Mins.
C First Final Flow Pressure	<u>56</u> P.S.I.	Initial Closed-in Pressure	<u>30</u> Mins.	<u>30</u> Mins.
D Initial Closed-in Pressure	<u>745</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>76</u> P.S.I.	Final Closed-in Pressure	<u>45</u> Mins.	<u>45</u> Mins.
F Second Final Flow Pressure	<u>97</u> P.S.I.			
G Final Closed-in Pressure	<u>526</u> P.S.I.			
H Final Hydrostatic Mud	<u>1770</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: <u>2</u> Inc.		Breakdown: <u>10</u> Inc.		Breakdown: <u>12</u> Inc.		Breakdown: <u>15</u> Inc.	
of <u>5</u> mins. and a		of <u>3</u> mins. and a		of <u>5</u> mins. and a		of <u>3</u> mins. and a	
final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.		final inc. of _____ Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>56</u>	<u>0</u>	<u>56</u>	<u>0</u>	<u>76</u>	<u>0</u>	<u>97</u>
P 2 <u>5</u>	<u>56</u>	<u>3</u>	<u>276</u>	<u>5</u>	<u>76</u>	<u>3</u>	<u>139</u>
P 3 <u>10</u>	<u>56</u>	<u>6</u>	<u>405</u>	<u>10</u>	<u>76</u>	<u>6</u>	<u>195</u>
P 4 _____		<u>9</u>	<u>479</u>	<u>15</u>	<u>77</u>	<u>9</u>	<u>239</u>
P 5 _____		<u>12</u>	<u>551</u>	<u>20</u>	<u>78</u>	<u>12</u>	<u>280</u>
P 6 _____		<u>15</u>	<u>594</u>	<u>25</u>	<u>72</u>	<u>15</u>	<u>318</u>
P 7 _____		<u>18</u>	<u>633</u>	<u>30</u>	<u>85</u>	<u>18</u>	<u>345</u>
P 8 _____		<u>21</u>	<u>668</u>	<u>35</u>	<u>87</u>	<u>21</u>	<u>374</u>
P 9 _____		<u>24</u>	<u>701</u>	<u>40</u>	<u>89</u>	<u>24</u>	<u>399</u>
P10 _____		<u>27</u>	<u>726</u>	<u>45</u>	<u>92</u>	<u>27</u>	<u>420</u>
P11 _____		<u>30</u>	<u>745</u>	<u>50</u>	<u>95</u>	<u>30</u>	<u>441</u>
P12 _____				<u>55</u>	<u>96</u>	<u>33</u>	<u>462</u>
P13 _____				<u>60</u>	<u>97</u>	<u>36</u>	<u>479</u>
P14 _____						<u>39</u>	<u>495</u>
P15 _____						<u>42</u>	<u>512</u>
P16 _____						<u>45</u>	<u>526</u>
P17 _____							
P18 _____							
P19 _____							
P20 _____							



This is an actual photograph of recorder chart.

POINT	PRESSURE		
	Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1784	1770	PSI
(B) First Initial Flow Pressure	53	56	PSI
(C) First Final Flow Pressure	53	56	PSI
(D) Initial Closed-in Pressure	758	745	PSI
(E) Second Initial Flow Pressure	74	76	PSI
(F) Second Final Flow Pressure	95	97	PSI
(G) Final Closed-in Pressure	540	526	PSI
(H) Final Hydrostatic Mud	1784	1770	PSI