



Home Office: Great Bend, Kansas
P. O. Box 793 Gladstone 3-7903

Company Bowers Drilling Company Lease & Well No. Groendyke #1
Elevation 1412 Derrick Floor; Formation-Miss. Ticket Number 4091
Date Oct. 4, 1964 Sec. 19 Twp. 33s Range 11w County Barber State Kansas
Test Approved by Harold Steincamp Western Representative George Tew

Formation Test No. 1 O.K. ☒ Misrun ☐ Interval Tested From 4476' to 4510' Total Depth 4510'
Size Main Hole 7 7/8 Rat Hole None Conv. ☒ B.T. ☐ Damaged ☐ Yes ☐ No ☐ Conv. ☐ B.T. ☒ Damaged ☐ Yes ☐ No ☐
Packer Depth 4476' Ft. Size 6 3/4 Packer Depth 4471' 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 1 1/2 F. H. Anchor Length 3/4 Ft. Size 5 1/2 O. D.

RECORDERS Depth 4499 Ft. Clock No. 6861 Depth 4502 Ft. Clock No. 105
Top Make Amerada Cap. 4200 No. 1558 Inside Bottom Make Western Cap. 4000 No. 60 Inside
Below Straddle: Depth Clock No. Outside Depth Ft. Clock No. Outside
Top Make Cap. No. Inside Bottom Make Cap. No. Outside

Time Set Packer 8:57 P
Tool Open I.F.P. From 9:00 P M. to 9:10 P M. Hr. 10 Min. From (B) 27 P.S.I. To (C) 27 P.S.I.
Tool Closed I.C.I.P. From 9:10 P M. to 9:40 P M. Hr. 30 Min. (D) 27 P.S.I.
Tool Open F.F.P. From 9:40 P M. to 10:40 P M. Hr. 1 Min. From (E) 27 P.S.I. To (F) 27 P.S.I.
Tool Closed F.C.I.P. From 10:40 P M. to 11:10 P M. Hr. 30 Min. (G) 42 P.S.I.
Initial Hydrostatic Pressure (A) 2449 P.S.I. Final Hydrostatic Pressure (H) 2427 P.S.I.

SURFACE Size Choke 3/4 In. Max. Press. P.S.I. Time Description of Flow
INFORMATION M.
 M.
 M.

BLOW Weak blow throughout test. Decreasing gradually Bottom Choke Size 3/4 In.
Did Well Flow ☒ Yes ☐ No Recovery Total Ft. 10# mud

Reversed Out ☒ Yes ☐ No Mud Type starch Viscosity 44 Weight 10.3 Maximum Temp. 121 °F

EXTRA EQUIPMENT: Dual Packers yes Safety Joint yes Jars: Size Make Ser. No.
Type Circ. Sub. plug Did Tool Plug? no Where? Did Packer Hold? yes
Length Drill Pipe 4454 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe ft. I.D. Weight Pipe in. Length Drill Collars ft.
I. D. Drill Collars in. Length D. S. T. Tool 56 ft.

Remarks

WESTERN TESTING CO., INC. **Pressure Data**

Date October 4, 1964 Test Ticket No. 4091
 Recorder No. 1558 Capacity 4200 Location 4499 Ft.
 Clock No. 6861 Elevation 1412 Derrick Floor Well Temperature 121 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2449</u> P.S.I.	Opened Tool	<u>8:57 P</u>	<u>M</u>
B First Initial Flow Pressure	<u>27</u> P.S.I.	First Flow Pressure	<u>10</u> Mins.	<u>10</u> Mins.
C First Final Flow Pressure	<u>27</u> P.S.I.	Initial Closed-in Pressure	<u>30</u> Mins.	<u>28</u> Mins.
D Initial Closed-in Pressure	<u>27</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>60</u> Mins.
E Second Initial Flow Pressure	<u>27</u> P.S.I.	Final Closed-in Pressure	<u>30</u> Mins.	<u>30</u> Mins.
F Second Final Flow Pressure	<u>27</u> P.S.I.			
G Final Closed-in Pressure	<u>42</u> P.S.I.			
H Final Hydrostatic Mud	<u>2427</u> P.S.I.			

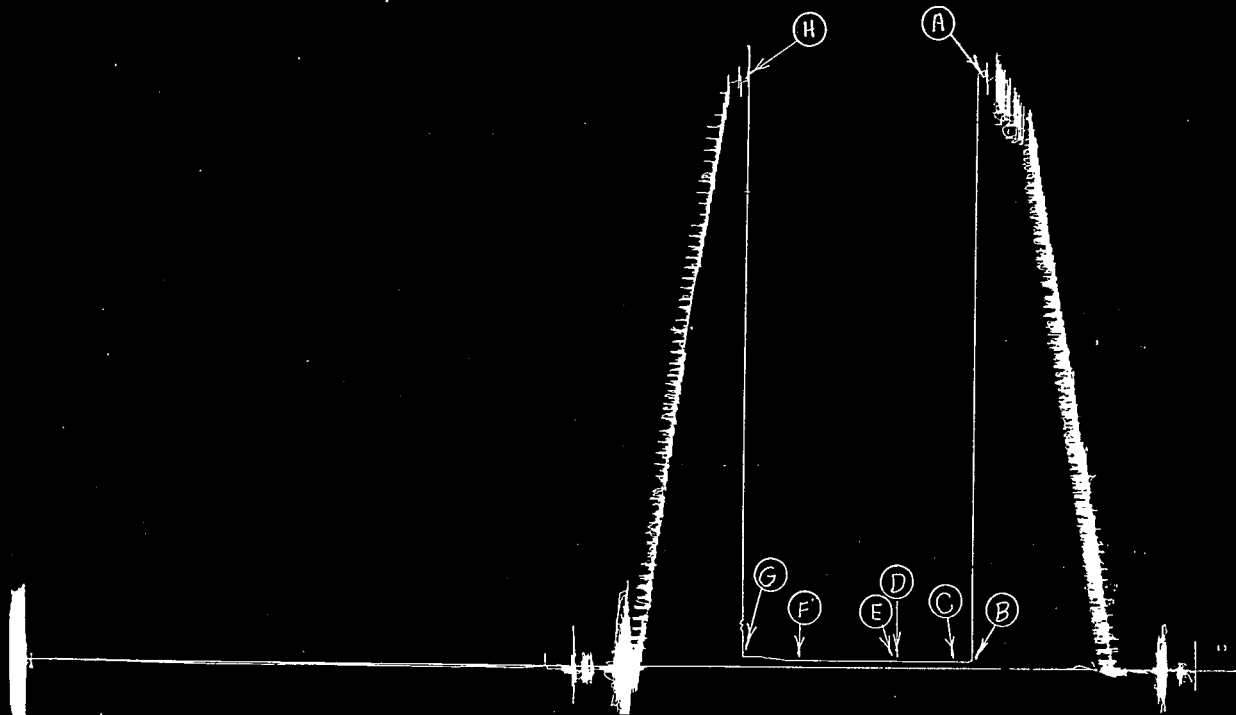
PRESSURE BREAKDOWN

First Flow Press.	Initial Shut-In	Second Flow Pressure	Final Shut-In
Breakdown: <u>2</u> Inc.	Breakdown: <u>9</u> Inc.	Breakdown: <u>12</u> Inc.	Breakdown: <u>10</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 <u>0</u> Min.	final inc. of <u>1</u> Min.	final inc. of <u>0</u> Min.	final inc. of <u>0</u> Min.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>27</u>	<u>0</u>	<u>27</u>	<u>0</u>	<u>27</u>	<u>0</u>	<u>27</u>
P 2 <u>5</u>	<u>27</u>	<u>3</u>	<u>27</u>	<u>5</u>	<u>27</u>	<u>3</u>	<u>28</u>
P 3 <u>10</u>	<u>27</u>	<u>6</u>	<u>27</u>	<u>10</u>	<u>27</u>	<u>6</u>	<u>30</u>
P 4		<u>9</u>	<u>27</u>	<u>15</u>	<u>27</u>	<u>9</u>	<u>32</u>
P 5		<u>12</u>	<u>27</u>	<u>20</u>	<u>27</u>	<u>12</u>	<u>35</u>
P 6		<u>15</u>	<u>27</u>	<u>25</u>	<u>27</u>	<u>15</u>	<u>36</u>
P 7		<u>18</u>	<u>27</u>	<u>30</u>	<u>27</u>	<u>18</u>	<u>40</u>
P 8		<u>21</u>	<u>27</u>	<u>35</u>	<u>27</u>	<u>21</u>	<u>42</u>
P 9		<u>24</u>	<u>27</u>	<u>40</u>	<u>27</u>	<u>24</u>	<u>42</u>
P 10		<u>27</u>	<u>27</u>	<u>45</u>	<u>27</u>	<u>27</u>	<u>42</u>
P 11		<u>28</u>	<u>27</u>	<u>50</u>	<u>27</u>	<u>30</u>	<u>42</u>
P 12				<u>55</u>	<u>27</u>		
P 13				<u>60</u>	<u>27</u>		
P 14							
P 15							
P 16							
P 17							
P 18							
P 19							
P 20							

Bowers Drilling Co.
Groendyke #1

TEST #1
TKT #4091





Home Office: Great Bend, Kansas
P. O. Box 793 Gladstone 3-7903

Company Bowers Drilling Company Lease & Well No. Greendyke #1
Elevation 1412 Derrick Floor : Formation-Miss. Ticket Number 4092
Date Oct. 5, 1964 Sec. 17 Twp. 33s Range 11w County Barber State Kansas
Test Approved by Harold Steincamp Western Representative George Tew

Formation Test No. 2 O.K. ☒ Misrun ☐ Interval Tested From 4510' to 4550' Total Depth 4550'
Size Main Hole 7 7/8 Rat Hole None Conv. ☒ B.T. ☐ Damaged ☐ Yes ☒ No ☐ Conv. ☐ B.T. ☒ Damaged ☐ Yes ☒ No ☐
Packer Depth 4510 Ft. Size 6 3/4 Packer Depth 4505 Ft. Size 6 3/4
Straddle ☐ Yes ☒ No ☐ Conv. ☐ B.T. ☐ Damaged ☐ Yes ☐ No ☐

Tool Size 5 1/2 O. D. Tool Jt. Size 4 1/2 F. H. Anchor Length 40 Ft. Size 5 1/2 O. D.

RECORDERS	Depth <u>4543</u> Ft.	Clock No. <u>6861</u>	Depth <u>4546</u> Ft.	Clock No. <u>105</u>
	Top Make <u>Amerada</u> Cap. <u>4200</u> No. <u>1558</u>	Inside ☐ Outside ☒	Bottom Make <u>Western</u> Cap. <u>4000</u> No. <u>60</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 2:15 P M
Tool Open I.F.P. From 2:17 P M to 2:22 P M Hr. 5 Min. From (B) 134 P.S.I. To (C) 134 P.S.I.
Tool Closed I.C.I.P. From 2:22 P M. to 2:52 P M. Hr. 30 Min. (D) 1544 P.S.I.
Tool Open F.F.P. From 2:52 P M. to 3:52 P M. 1 Hr. Min. From (E) 120 P.S.I. To (F) 189 P.S.I.
Tool Closed F.C.I.P. From 3:52 P M. to 4:22 P M. Hr. 30 Min. (G) 1326 P.S.I.
Initial Hydrostatic Pressure (A) 2468 P.S.I. Final Hydrostatic Pressure (H) 2442 P.S.I.

SURFACE	Size Choke <u>3/4</u> In.	Max. Press. P.S.I.	Time	Description of Flow
INFORMATION	(SEE ATTACHED SHEET)			

BLOW Strong gas to surface in five minutes. Bottom Choke Size 3/4 In

Did Well Flow ☐ Yes ☐ No Recovery Total Ft. 555' total fluid - 128' oil cut mud - 122' very heavy oil
cut mud - 305' mud cut oil.

Reversed Out ☐ Yes ☐ No Mud Type starch Viscosity 43 Weight 10.1 Maximum Temp. _____

EXTRA EQUIPMENT: Dual Packers ☒ Safety Joint ☒ Jars: Size _____ Make _____ Ser. No. _____

Type Circ. Sub. plug Did Tool Plug? _____ Where? _____ Did Packer Hold? _____

Length Drill Pipe 4484 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe _____ ft. I.D. Weight Pipe _____ in. Length Drill Collars _____

I. D. Drill Collars _____ in. Length D. S. T. Tool 66 ft.

Remarks

WESTERN TESTING CO., INC. Pressure Data

Date October 5, 1964

Test Ticket No. 4092

Recorder No. 1558

Capacity 4200

Location 4542 Ft.

Clock No. 6861

Elevation 1412 Derrick Floor

Well Temperature = °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2468</u> P.S.I.	Opened Tool	<u>2:15</u> P M	
B First Initial Flow Pressure	<u>134</u> P.S.I.	First Flow Pressure	<u>5</u> Mins.	<u>5</u> Mins.
C First Final Flow Pressure	<u>134</u> P.S.I.	Initial Closed-in Pressure	<u>30</u> Mins.	<u>36</u> Mins.
D Initial Closed-in Pressure	<u>1544</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>64</u> Mins.
E Second Initial Flow Pressure	<u>120</u> P.S.I.	Final Closed-in Pressure	<u>30</u> Mins.	<u>35</u> Mins.
F Second Final Flow Pressure	<u>189</u> P.S.I.			
G Final Closed-in Pressure	<u>1326</u> P.S.I.			
H Final Hydrostatic Mud	<u>2447</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Press.

Breakdown: 1 Inc.
of 5 mins. and a
final inc. of 0 Min.

Initial Shut-In

Breakdown: 12 Inc.
of 3 mins. and a
final inc. of 0 Min.

Second Flow Pressure

Breakdown: 12 Inc.
of 5 mins. and a
final inc. of 4 Min.

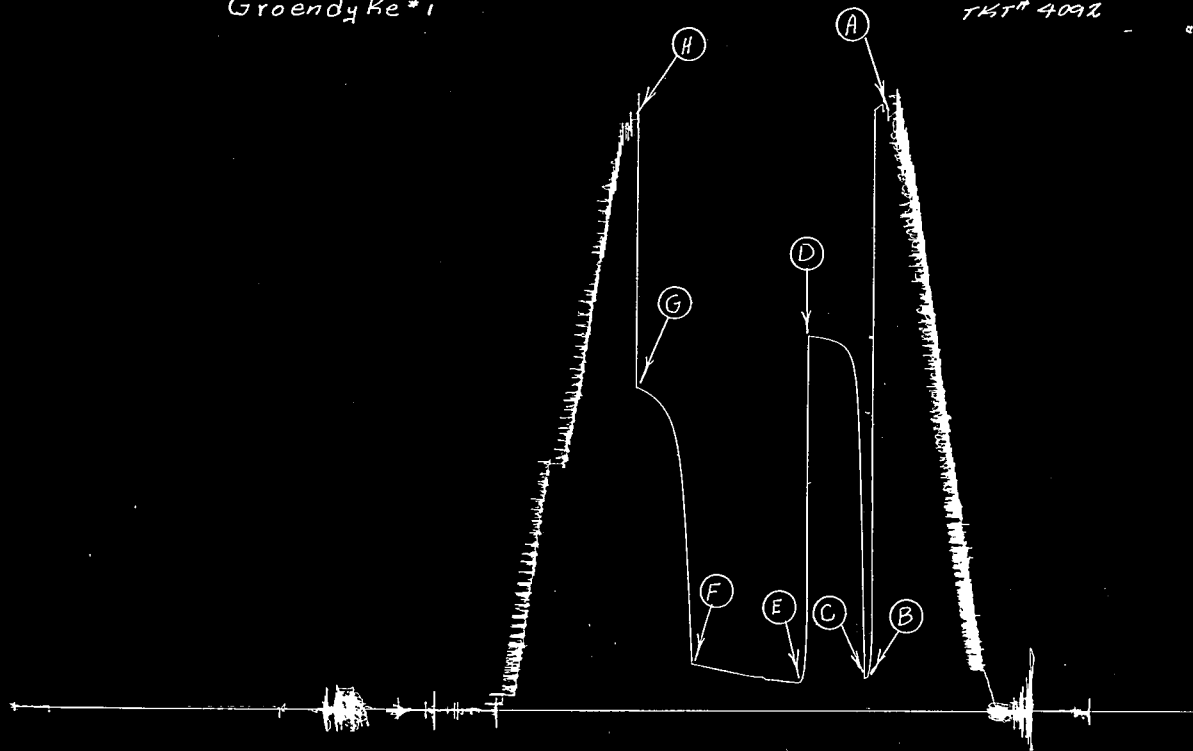
Final Shut-In

Breakdown: 11 Inc.
of 3 mins. and a
final inc. of 2 Min.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>134</u>	<u>0</u>	<u>134</u>	<u>0</u>	<u>120</u>	<u>0</u>	<u>189</u>
P 2 <u>5</u>	<u>134</u>	<u>3</u>	<u>716</u>	<u>5</u>	<u>122</u>	<u>3</u>	<u>558</u>
P 3		<u>6</u>	<u>1348</u>	<u>10</u>	<u>124</u>	<u>6</u>	<u>874</u>
P 4		<u>9</u>	<u>1361</u>	<u>15</u>	<u>128</u>	<u>9</u>	<u>1043</u>
P 5		<u>12</u>	<u>1460</u>	<u>20</u>	<u>130</u>	<u>12</u>	<u>1144</u>
P 6		<u>15</u>	<u>1497</u>	<u>25</u>	<u>137</u>	<u>15</u>	<u>1202</u>
P 7		<u>18</u>	<u>1512</u>	<u>30</u>	<u>142</u>	<u>18</u>	<u>1242</u>
P 8		<u>21</u>	<u>1523</u>	<u>35</u>	<u>149</u>	<u>21</u>	<u>1267</u>
P 9		<u>24</u>	<u>1529</u>	<u>40</u>	<u>156</u>	<u>24</u>	<u>1286</u>
P 10		<u>27</u>	<u>1533</u>	<u>45</u>	<u>164</u>	<u>27</u>	<u>1300</u>
P 11		<u>30</u>	<u>1540</u>	<u>50</u>	<u>170</u>	<u>30</u>	<u>1313</u>
P 12		<u>33</u>	<u>1542</u>	<u>55</u>	<u>179</u>	<u>33</u>	<u>1321</u>
P 13		<u>36</u>	<u>1544</u>	<u>60</u>	<u>185</u>	<u>35</u>	<u>1326</u>
P 14				<u>64</u>	<u>189</u>		
P 15							
P 16							
P 17							
P 18							
P 19							
P 20							

Bowers Drilg. Co.
Groendyke #1

TEST # 2
TKT # 4092





Home Office: Great Bend, Kansas
P. O. Box 793 Gladstone 3-7903

Company Bowers Drilling Company Lease & Well No. Groendyke #1
Elevation 1412 Derrick Floor : Formation: Miss. Ticket Number 4093
Date 10-6-64 Sec. 17 Twp. 33s Range 11w County Barber State Kansas
Test Approved by Harold Steincamp Western Representative George Tew

Formation Test No. 3 O.K. ☒ Misrun ☐ Interval Tested From 4550' to 4570' Total Depth 4570'
Size Main Hole 7 7/8" Rat Hole None Conv. ☒ B.T. ☐ Damaged Yes ☐ No ☐ Conv. ☒ B.T. ☐ Damaged Yes ☐ No ☐
Packer Depth 4550 Ft. Size 6 3/4 Packer Depth 4545 Ft. Size 6 3/4
Straddle Yes ☒ No ☐ Conv. ☐ B.T. ☐ Damaged Yes ☐ No ☐
Tool Size 5 1/2" O. D. Tool Jt. Size 4 1/2" F. H. Anchor Length 20 Ft. Size 5 1/2" O. D.

RECORDERS Depth 4564 Ft. Clock No. 6861 Depth 4567 Ft. Clock No. 105
Top Make Amerada Cap. 4200 No. 1558 Inside Outside Bottom Make Western Cap. 4000 No. 60 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 4:34 A M
Tool Open I.F.P. From 4:37 A M to 4:42 A M Hr. 5 Min. From (B) 54 P.S.I. To (C) 54 P.S.I.
Tool Closed I.C.I.P. From 4:42 A M. to 5:12 A M. Hr. 30 Min. (D) 1468 P.S.I.
Tool Open F.F.P. From 5:12 A M. to 6:12 A M. 1 Hr. Min. From (E) 75 P.S.I. To (F) 137 P.S.I.
Tool Closed F.C.I.P. From 6:12 A M. to 6:42 A M. Hr. 30 Min. (G) 1353 P.S.I.
Initial Hydrostatic Pressure (A) 2470 P.S.I. Final Hydrostatic Pressure (H) 2451 P.S.I.

SURFACE Size Choke 3/4 In. Max. Press. P.S.I. Time Description of Flow
INFORMATION M.
 M.
 M.

BLOW Strong gas to surface in 15 minutes- Too weak to gauge * Bottom Choke Size 3/4 In.
Did Well Flow ☒ Yes ☐ No Recovery Total Ft. 280' total - 220' mud cut oil - 60' water

Reversed Out ☒ Yes ☐ No Mud Type starch Viscosity 43 Weight 10.1 Maximum Temp. 121 °F
EXTRA EQUIPMENT: Dual Packers yes Safety Joint yes Jars: Size Make Ser. No.
Type Circ. Sub. plug Did Tool Plug? no Where? Did Packer Hold? yes
Length Drill Pipe 4528 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe ft. I.D. Weight Pipe in. Length Drill Collars ft.
I. D. Drill Collars in. Length D. S. T. Tool 42 ft.

Remarks * Blow diminished slightly throughout test.

WESTERN TESTING CO., INC.

Pressure Data

Date October 6, 1964 Test Ticket No. 4093
 Recorder No. 1558 Capacity 4200 Location 4564 Ft.
 Clock No. 6861 Elevation 1412 Derrick Floor Well Temperature 121 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2470</u> P.S.I.	Opened Tool	<u>4:34</u> A. M.	
B First Initial Flow Pressure	<u>54</u> P.S.I.	First Flow Pressure	<u>5</u> Mins.	<u>5</u> Mins.
C First Final Flow Pressure	<u>54</u> P.S.I.	Initial Closed-in Pressure	<u>30</u> Mins.	<u>36</u> Mins.
D Initial Closed-in Pressure	<u>1468</u> P.S.I.	Second Flow Pressure	<u>60</u> Mins.	<u>64</u> Mins.
E Second Initial Flow Pressure	<u>75</u> P.S.I.	Final Closed-in Pressure	<u>30</u> Mins.	<u>36</u> Mins.
F Second Final Flow Pressure	<u>137</u> P.S.I.			
G Final Closed-in Pressure	<u>1353</u> P.S.I.			
H Final Hydrostatic Mud	<u>2451</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Press. Breakdown: <u>1</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Initial Shut-In Breakdown: <u>12</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.	Second Flow Pressure Breakdown: <u>12</u> Inc. of <u>5</u> mins. and a final inc. of <u>4</u> Min.	Final Shut-In Breakdown: <u>12</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.
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Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>54</u>	<u>0</u>	<u>54</u>	<u>0</u>	<u>75</u>	<u>0</u>	<u>137</u>
P 2 <u>5</u>	<u>54</u>	<u>3</u>	<u>229</u>	<u>5</u>	<u>78</u>	<u>3</u>	<u>436</u>
P 3		<u>6</u>	<u>545</u>	<u>10</u>	<u>81</u>	<u>6</u>	<u>703</u>
P 4		<u>9</u>	<u>891</u>	<u>15</u>	<u>84</u>	<u>9</u>	<u>885</u>
P 5		<u>12</u>	<u>1091</u>	<u>20</u>	<u>88</u>	<u>12</u>	<u>1016</u>
P 6		<u>15</u>	<u>1234</u>	<u>25</u>	<u>94</u>	<u>15</u>	<u>1114</u>
P 7		<u>18</u>	<u>1317</u>	<u>30</u>	<u>101</u>	<u>18</u>	<u>1174</u>
P 8		<u>21</u>	<u>1361</u>	<u>35</u>	<u>107</u>	<u>21</u>	<u>1229</u>
P 9		<u>24</u>	<u>1399</u>	<u>40</u>	<u>111</u>	<u>24</u>	<u>1263</u>
P 10		<u>27</u>	<u>1426</u>	<u>45</u>	<u>120</u>	<u>27</u>	<u>1292</u>
P 11		<u>30</u>	<u>1445</u>	<u>50</u>	<u>124</u>	<u>30</u>	<u>1319</u>
P 12		<u>33</u>	<u>1454</u>	<u>55</u>	<u>130</u>	<u>33</u>	<u>1336</u>
P 13		<u>36</u>	<u>1468</u>	<u>60</u>	<u>134</u>	<u>36</u>	<u>1353</u>
P 14				<u>64</u>	<u>137</u>		
P 15							
P 16							
P 17							
P 18							
P 19							
P 20							

Bowers Drilling Co.
Groendyke #1

Test #3
TKT#4093

