

Pickrell Drilling Company

Cowen "A" #1

Company 2038 Kelly Bushing Lansing Lease & Well No. 3916
 Elevation Formation Effective Pay ----- Ft. Ticket No. -----
 Date 11/4/79 Sec. 5 Twp. 28S Range 14W County Pratt State Kansas
 Test Approved by Harlan B. Dixon Western Representative Roger Lisenby

Formation Test No. 1 Interval Tested from 4016 ft. to 4035 ft. Total Depth 4035 ft.
 Packer Depth 4011 ft. Size 6 3/4 in. Packer Depth 4016 ft. Size 6 3/4 in.
 Packer Depth - ft. Size - in. Packer Depth - ft. Size - in.

Depth of Selective Zone Set -
 Top Recorder Depth (Inside) 4026 ft. Recorder Number 3085 Cap. 3150
 Bottom Recorder Depth (Outside) 4029 ft. Recorder Number 1564 Cap. 4500
 Below Straddle Recorder Depth - ft. Recorder Number - Cap. -

Drilling Contractor Pickrell Drilling Rig #10 Drill Collar Length - I. D. - in.
 Mud Type premix Viscosity 41 Weight Pipe Length 566 I. D. 2.7 in.
 Weight 8.1 Water Loss 10.0 cc. Drill Pipe Length 3469 I. D. 3.8 in.
 Chlorides 25,000 P.P.M. Test Tool Length 21 ft. Tool Size 5 1/2 in.
 Jars: Make -- Serial Number --- Anchor Length 19 ft. Size 5 1/2 in.
 Did Well Flow? No Reversed Out No Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
 Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 FH in.

Blow: Steady blow one inch in bucket of water first opening. Weaker steady blow 1/4" in water second opening.

Recovered 35 ft. of slightly gas cut mud with a few oil spots.
 Recovered ft. of
 Recovered ft. of
 Recovered ft. of
 Recovered ft. of

Remarks:

Time Set Packer(s) 8:50 ~~A.M.~~ P.M. Time Started Off Bottom 12:53 ~~A.M.~~ P.M. Maximum Temperature 111⁰
 Initial Hydrostatic Pressure 1984 P.S.I. (A)
 Initial Flow Period 30 Minutes (B) 38 P.S.I. to (C) 32 P.S.I.
 Initial Closed In Period 60 Minutes (D) 1268 P.S.I.
 Final Flow Period 90 Minutes (E) 43 P.S.I. to (F) 43 P.S.I.
 Final Closed In Period 60 Minutes (G) 1147 P.S.I.
 Final Hydrostatic Pressure 1961 P.S.I. (H)

WESTERN TESTING CO., INC.

Pressure Data

Date 11/4/79 Test Ticket No. 3916
 Recorder No. 3085 Capacity 3150 Location 4026 Ft.
 Clock No. --- Elevation 2038 Kelly Bushing Well Temperature 111 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	1984	P.S.I.	8:50P	M
B First Initial Flow Pressure	38	P.S.I.	30	Mins.
C First Final Flow Pressure	32	P.S.I.	60	Mins.
D Initial Closed-in Pressure	1268	P.S.I.	90	Mins.
E Second Initial Flow Pressure	43	P.S.I.	60	Mins.
F Second Final Flow Pressure	43	P.S.I.		
G Final Closed-in Pressure	1147	P.S.I.		
H Final Hydrostatic Mud	1961	P.S.I.		

PRESSURE BREAKDOWN

First Flow Pressure
 Breakdown: 6 Inc.
 of 5 mins. and a
 final inc. of 0 Min.

Initial Shut-In
 Breakdown: 21 Inc.
 of 3 mins. and a
 final inc. of 0 Min.

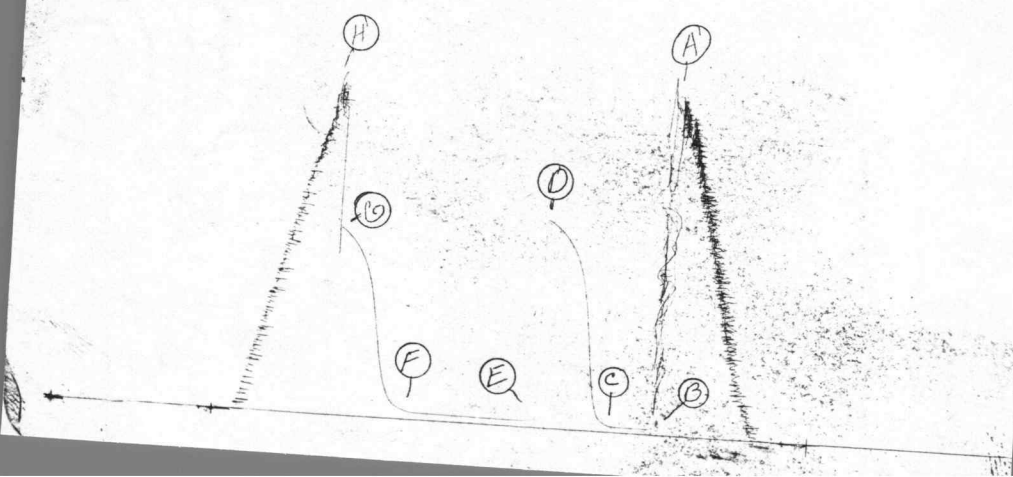
Second Flow Pressure
 Breakdown: 18 Inc.
 of 5 mins. and a
 final inc. of 0 Min.

Final Shut-In
 Breakdown: 21 Inc.
 of 3 mins. and a
 final inc. of 0 Min.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	38	0	32	0	43	0	43
P 2 5	36	3	35	5	42	3	48
P 3 10	32	6	42	10	38	6	53
P 4 15	32	9	50	15	38	9	62
P 5 20	32	12	66	20	38	12	72
P 6 25	32	15	103	25	38	15	88
P 7 30	32	18	194	30	38	18	115
P 8		21	320	35	38	21	165
P 9		24	495	40	40	24	239
P10		27	667	45	40	27	347
P11		30	823	50	40	30	493
P12		33	944	55	40	33	638
P13		36	1018	60	40	36	779
P14		39	1076	65	40	39	874
P15		42	1118	70	41	42	939
P16		45	1152	75	41	45	988
P17		48	1180	80	42	48	1032
P18		51	1205	85	43	51	1065
P19		54	1228	90	43	54	1090
P20		57	1246			57	1116
		60	1259			60	1134
WTC - 4		63	1268			63	1147

522

TKT # 3916
I



Company Pickrell Drilling Company Lease & Well No. Cowen "A" #1
 Elevation 2038 Kelly Bushing Formation Lansing Effective Pay --- Ft. Ticket No. 3917
 Date 11/5/79 Sec. 5 Twp. 28S Range 14W County Pratt State Kansas
 Test Approved by Harlan B. Dixon Western Representative Roger Lisenby

Formation Test No. 2 Interval Tested from 4133 ft. to 4152 ft. Total Depth 4152 ft.
 Packer Depth 4128 ft. Size 6 3/4 in. Packer Depth 4133 ft. Size 6 3/4 in.
 Packer Depth --- ft. Size --- in. Packer Depth --- ft. Size --- in.
 Depth of Selective Zone Set ---

Top Recorder Depth (Inside) 4143 ft. Recorder Number 3085 Cap. 4500
 Bottom Recorder Depth (Outside) 4146 ft. Recorder Number 1564 Cap. 3150
 Below Straddle Recorder Depth --- ft. Recorder Number --- Cap. ---

Drilling Contractor Pickrell Drilling Rig #10 Drill Collar Length --- I. D. -- in.
 Mud Type premix Viscosity 39 Weight Pipe Length 566 I. D. 2.7 in.
 Weight 9.2 Water Loss 10.4 cc. Drill Pipe Length 3546 I. D. 3.8 in.
 Chlorides 24,000 P.P.M. Test Tool Length 21 ft. Tool Size 5 1/2 in.
 Jars: Make - Serial Number - Anchor Length 19 ft. Size 5 1/2 in.
 Did Well Flow? No Reversed Out No Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
 Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 FH in.

Blow: Weak blow throughout first opening (1/4" in bucket). Weak blow throughout second opening (1/4" in bucket)

Recovered 50 ft. of gas in pipe
 Recovered 10 ft. of gas cut mud with a few oil spots.
 Recovered --- ft. of ---
 Recovered --- ft. of ---
 Recovered --- ft. of ---

Remarks: ---

Time Set Packer(s) 9:45 A.M. Time Started Off Bottom 1:47 P.M. Maximum Temperature 116°
 Initial Hydrostatic Pressure 2089 P.S.I. (A)
 Initial Flow Period 30 Minutes (B) 31 P.S.I. to (C) 22 P.S.I.
 Initial Closed In Period 60 Minutes (D) 56 P.S.I.
 Final Flow Period 90 Minutes (E) 29 P.S.I. to (F) 22 P.S.I.
 Final Closed In Period 60 Minutes (G) 60 P.S.I.
 Final Hydrostatic Pressure 2043 P.S.I. (H)

WESTERN TESTING CO., INC.
Pressure Data

Date 11/5/79 Test Ticket No. 3917
 Recorder No. 3085 Capacity 4500 Location 4143 Ft.
 Clock No. --- Elevation 2038 Kelly Bushing Well Temperature 116 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	2089	P.S.I.	9:45P	
B First Initial Flow Pressure	31	P.S.I.		
C First Final Flow Pressure	22	P.S.I.		
D Initial Closed-in Pressure	56	P.S.I.		
E Second Initial Flow Pressure	29	P.S.I.		
F Second Final Flow Pressure	22	P.S.I.		
G Final Closed-in Pressure	60	P.S.I.		
H Final Hydrostatic Mud	2043	P.S.I.		

Open Tool
 First Flow Pressure
 Initial Closed-in Pressure
 Second Flow Pressure
 Final Closed-in Pressure

Time Given	M	Time Computed	Mins.
9:45P			
30		30	
60		60	
90		90	
60		60	

PRESSURE BREAKDOWN

First Flow Pressure
 Breakdown: 6 Inc.
 of 5 mins. and a
 final inc. of 0 Min.

Initial Shut-In
 Breakdown: 20 Inc.
 of 3 mins. and a
 final inc. of 0 Min.

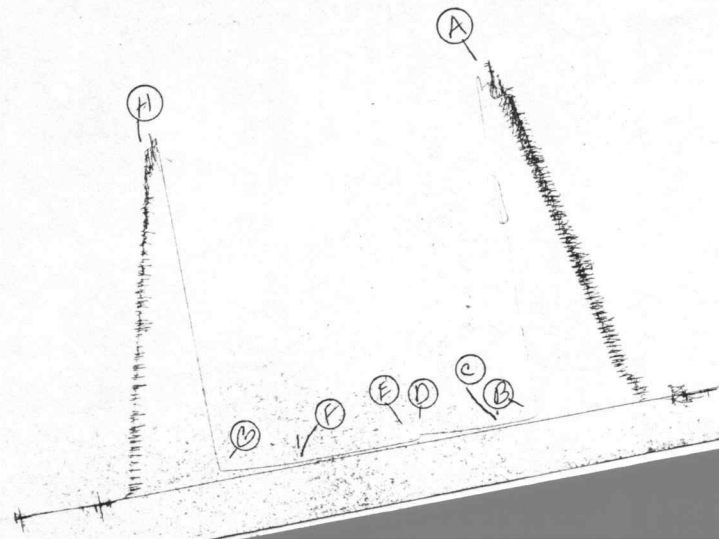
Second Flow Pressure
 Breakdown: 18 Inc.
 of 5 mins. and a
 final inc. of 0 Min.

Final Shut-In
 Breakdown: 20 Inc.
 of 3 mins. and a
 final inc. of 0 Min.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.	
P 1	0	31	0	22	0	29	0	22
P 2	5	28	3	22	5	26	3	23
P 3	10	23	6	22	10	24	6	24
P 4	15	22	9	22	15	22	9	25
P 5	20	22	12	22	20	22	12	27
P 6	25	22	15	24	25	22	15	29
P 7	30	22	18	26	30	22	18	31
P 8			21	29	35	22	21	32
P 9			24	30	40	22	24	33
P10			27	31	45	22	27	35
P11			30	32	50	22	30	36
P12			33	34	55	22	33	38
P13			36	37	60	22	36	41
P14			39	39	65	22	39	43
P15			42	42	70	22	42	45
P16			45	45	75	22	45	47
P17			48	48	80	22	48	48
P18			51	50	85	22	51	52
P19			54	52	90	22	54	54
P20			57	54			57	57
WTC - 4			60	56			60	60

2085

AKL # 3917
I



Company pickrell Drilling Company Lease & Well No. Cowen "A" #1
 Elevation 2038 Kelly Bushing Formation Lansing Effective Pay ----- Ft. Ticket No. 3918
 Date 11/6/79 Sec. 5 Twp. 28S Range 14W County Pratt State Kansas
 Test Approved by Harlan B. Dixon Western Representative Roger Lisenby

Formation Test No. 3 Interval Tested from 4152 ft. to 4175 ft. Total Depth 4175 ft.
 Packer Depth 4147 ft. Size 6 3/4 in. Packer Depth 4152 ft. Size 6 3/4 in.
 Packer Depth -- ft. Size --- in. Packer Depth -- ft. Size -- in.

Depth of Selective Zone Set --
 Top Recorder Depth (Inside) 4163 ft. Recorder Number 3085 Cap. 4500
 Bottom Recorder Depth (Outside) 4169 ft. Recorder Number 1564 Cap. 3150
 Below Straddle Recorder Depth - ft. Recorder Number - Cap. -

Drilling Contractor Pickrell Drilling Company Rig #10 Drill Collar Length -- I. D. -- in.
 Mud Type premix Viscosity 42 Weight Pipe Length 566 I. D. 2.7 in.
 Weight 9.2 Water Loss 11.2 cc. Drill Pipe Length 3565 I. D. 3.8 in.
 Chlorides 26,000 P.P.M. Test Tool Length 21 ft. Tool Size 5 1/2 in.
 Jars: Make -- Serial Number -- Anchor Length 23 ft. Size 5 1/2 in.
 Did Well Flow? No Reversed Out no Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
 Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 FH in.

Blow: Weak blow increasing to 1/2" to 1/2" deep in bucket first opening. Blow increasing from 1/2" to 3 1/2" in bucket final opening.

Recovered 100 ft. of gas in pipe
 Recovered 20 ft. of oil and gas cut muddy water
 Recovered 60 ft. of muddy water
 Recovered ft. of Chlorides 63,000 ppm
 Recovered ft. of Chlorides 63,000 ppm

Remarks: _____

Time Set Packer(s) 1:30 ~~A.M.~~ P.M. Time Started Off Bottom 5:33 ~~A.M.~~ P.M. Maximum Temperature 117⁰
 Initial Hydrostatic Pressure (A) 2093 P.S.I.
 Initial Flow Period Minutes 30 (B) 22 P.S.I. to (C) 22 P.S.I.
 Initial Closed In Period Minutes 60 (D) 1514 P.S.I.
 Final Flow Period Minutes 90 (E) 38 P.S.I. to (F) 65 P.S.I.
 Final Closed In Period Minutes 60 (G) 1500 P.S.I.
 Final Hydrostatic Pressure (H) 2050 P.S.I.

WESTERN TESTING CO., INC.
Pressure Data

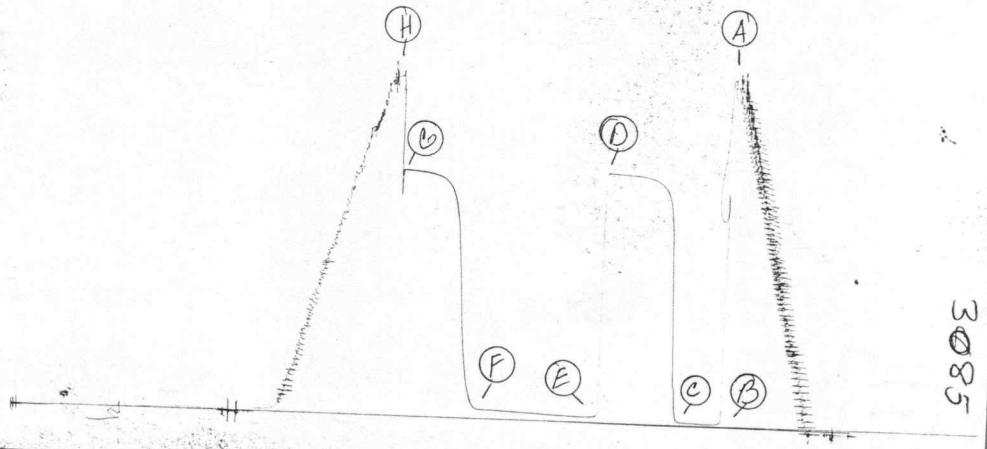
Date 11/6/79 Test Ticket No. 3918
 Recorder No. 3085 Capacity 4500 Location 4163 Ft.
 Clock No. --- Elevation 2038 Kelly Bushing Well Temperature 117 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	2093	P.S.I.	1:30P	M
B First Initial Flow Pressure	22	P.S.I.	30	Mins. 30 Mins.
C First Final Flow Pressure	22	P.S.I.	60	Mins. 60 Mins.
D Initial Closed-in Pressure	1514	P.S.I.	90	Mins. 90 Mins.
E Second Initial Flow Pressure	38	P.S.I.	60	Mins. 60 Mins.
F Second Final Flow Pressure	65	P.S.I.		
G Final Closed-in Pressure	1500	P.S.I.		
H Final Hydrostatic Mud	2050	P.S.I.		

PRESSURE BREAKDOWN

Point Mins.	First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In
	Breakdown: <u>6</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>20</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>18</u> Inc. of <u>5</u> mins. and a final inc. of <u>0</u> Min.	Breakdown: <u>20</u> Inc. of <u>3</u> mins. and a final inc. of <u>0</u> Min.
	Press.	Point Minutes	Press.	Point Minutes
P 1	22	0	22	0
P 2	22	3	33	3
P 3	22	6	198	6
P 4	22	9	519	9
P 5	22	12	1162	12
P 6	22	15	1379	15
P 7	22	18	1435	18
P 8		21	1461	21
P 9		24	1479	24
P10		27	1486	27
P11		30	1494	30
P12		33	1500	33
P13		36	1502	36
P14		39	1505	39
P15		42	1507	42
P16		45	1509	45
P17		48	1510	48
P18		51	1511	51
P19		54	1512	54
P20		57	1513	57
		60	1514	60

TKL# 3918
I



Company Pickrell Drilling Company Lease & Well No. Cowen "A" #1
 Elevation 2038 Formation Mississippi Effective Pay ---- Ft. Ticket No. 3919
 Date 11/8/79 Sec. 5 Twp. 28S Range 14W County Pratt State Kansas
 Test Approved by Harlan B. Dixon Western Representative Roger Lisenby

Formation Test No. 4 Interval Tested from 4457 ft. to 4475 ft. Total Depth 4475 ft.
 Packer Depth 4452 ft. Size 6 3/4 in. Packer Depth 4457 ft. Size 6 3/4 in.
 Packer Depth - - ft. Size - in. Packer Depth - ft. Size - in.
 Depth of Selective Zone Set -

Top Recorder Depth (Inside) 4463 ft. Recorder Number 3085 Cap. 4500
 Bottom Recorder Depth (Outside) 4469 ft. Recorder Number 1565 Cap. 3150
 Below Straddle Recorder Depth - ft. Recorder Number - Cap. -

Drilling Contractor Pickrell Drilling Rig #10 Drill Collar Length - I. D. - in.
 Mud Type premix Viscosity 50 Weight Pipe Length 566 I. D. 2.7 in.
 Weight 9.2 Water Loss 18.6 cc. Drill Pipe Length 3870 I. D. 3.8 in.
 Chlorides 21,000 P.P.M. Test Tool Length 21 ft. Tool Size 5 1/2 in.
 Jars: Make -- Serial Number -- Anchor Length 18 ft. Size 5 1/2 in.
 Did Well Flow? No Reversed Out No Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
 Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 FH in.

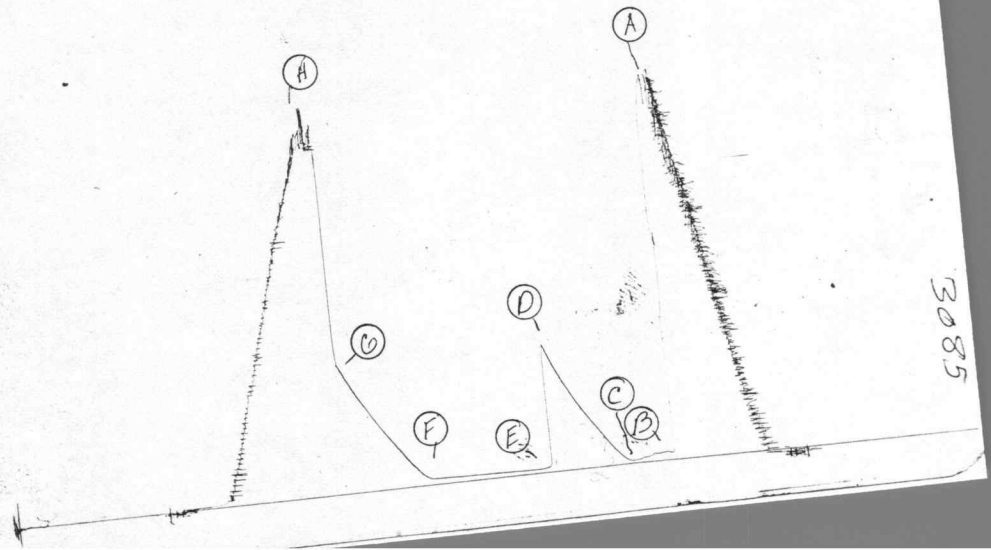
Blow: Weak blow increasing to strong first opening. Strong blow second opening.

Recovered 1285 ft. of gas in pipe
 Recovered 15 ft. of gas cut mud with few oil spots
 Recovered 20 ft. of gas and oil cut mud 20% oil;75% mud;5% gas
 Recovered 40 ft. of gas and oil cut mud 20% oil;45% mud;35% gas
 Recovered ft. of

Remarks:

Time Set Packer(s) 4:15 ~~A.M.~~ P.M. Time Started Off Bottom 8:17 A.M. P.M. Maximum Temperature 122⁰
 Initial Hydrostatic Pressure (A) 2189 P.S.I.
 Initial Flow Period Minutes 30 (B) 53 P.S.I. to (C) 26 P.S.I.
 Initial Closed In Period Minutes 60 (D) 795 P.S.I.
 Final Flow Period Minutes 90 (E) 36 P.S.I. to (F) 45 P.S.I.
 Final Closed In Period Minutes 63 (G) 797 P.S.I.
 Final Hydrostatic Pressure (H) 2171 P.S.I.

TKL # 3919
I



3085

Company Pickrell Drilling Company Lease & Well No. Cowen "A" #1
 Elevation 2038 Formation Kinderhook Effective Pay ----- Ft. Ticket No. 3920
 Date 11/9/79 Sec. 5 Twp. 28S Range 14W County Pratt State Kansas
 Test Approved by Harlan B. Dixon Western Representative Roger Lisenby

Formation Test No. 5 Interval Tested from 4472 ft. to 4495 ft. Total Depth 4495 ft.
 Packer Depth 4467 ft. Size 6 3/4 in. Packer Depth 4472 ft. Size 6 3/4 in.
 Packer Depth ----- ft. Size ----- in. Packer Depth ----- ft. Size ----- in.

Depth of Selective Zone Set -----
 Top Recorder Depth (Inside) 4486 ft. Recorder Number 3085 Cap. 4500
 Bottom Recorder Depth (Outside) 4489 ft. Recorder Number 1564 Cap. 3150
 Below Straddle Recorder Depth ----- ft. Recorder Number ----- Cap. -----

Drilling Contractor Pickrell Drilling Rig #10 Drill Collar Length ----- I. D. ----- in.
 Mud Type premix Viscosity 52 Weight Pipe Length 566 I. D. 2.7 in.
 Weight 9.3 Water Loss 18.8 cc. Drill Pipe Length 3885 I. D. 3.8 in.
 Chlorides 26,000 P.P.M. Test Tool Length 21 ft. Tool Size 5 1/2 in.
 Jars: Make ----- Serial Number ----- Anchor Length 23 ft. Size 5 1/2 in.
 Did Well Flow? NO Reversed Out NO Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.
 Main Hole Size 7 7/8 in. Tool Joint Size 4 1/2 FH in.

Blow: Weak blow 1/4 inch in bucket decreasing throughout first opening; no blow second opening; flushed tool, still no blow.

Recovered 15 ft. of mud few oil spots.
 Recovered ----- ft. of -----
 Recovered ----- ft. of -----
 Recovered ----- ft. of -----
 Recovered ----- ft. of -----

Remarks: -----

Time Set Packer(s) 8:37 A.M. ----- Time Started Off Bottom 10:30 A.M. ----- Maximum Temperature 121⁰
----- -----
 Initial Hydrostatic Pressure ----- (A) 2296 P.S.I.
 Initial Flow Period ----- Minutes 30 (B) 33 P.S.I. to (C) 23 P.S.I.
 Initial Closed In Period ----- Minutes 60 (D) 49 P.S.I.
 Final Flow Period ----- Minutes ----- (E) Not taken P.S.I. Not Taken P.S.I.
 Final Closed In Period ----- Minutes ----- (G) " " P.S.I.
 Final Hydrostatic Pressure ----- (H) 2160 P.S.I.

WESTERN TESTING CO., INC.
Pressure Data

Date 11-9-79

Test Ticket No. 3920

Recorder No. 3085

Capacity 4500

Location 4486 Ft.

Clock No. _____ Elevation 2038

Well Temperature 121 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	<u>2296</u> P.S.I.	Open Tool	<u>8:37A</u> M	
B First Initial Flow Pressure	<u>33</u> P.S.I.	First Flow Pressure	<u>30</u> Mins.	<u>30</u> Mins.
C First Final Flow Pressure	<u>23</u> P.S.I.	Initial Closed-in Pressure	<u>60</u> Mins.	<u>60</u> Mins.
D Initial Closed-in Pressure	<u>49</u> P.S.I.	Second Flow Pressure	- Mins.	- Mins.
E Second Initial Flow Pressure	<u>No pressures available</u>	Final Closed-in Pressure	- Mins.	- Mins.
F Second Final Flow Pressure	" " " P.S.I.			
G Final Closed-in Pressure	" " " P.S.I.			
H Final Hydrostatic Mud	<u>2160</u> P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure
Breakdown: 6 Inc.
of 5 mins. and a
final inc. of 0 Min.

Initial Shut-In
Breakdown: 20 Inc.
of 3 mins. and a
final inc. of 0 Min.

Second Flow Pressure
Breakdown: - Inc.
of 5 mins. and a
final inc. of 0 Min.

Final Shut-In
Breakdown: - Inc.
of 3 mins. and a
final inc. of 0 Min.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 <u>0</u>	<u>33</u>	<u>0</u>	<u>23</u>				
P 2 <u>5</u>	<u>16</u>	<u>3</u>	<u>23</u>				
P 3 <u>10</u>	<u>23</u>	<u>6</u>	<u>24</u>				
P 4 <u>15</u>	<u>23</u>	<u>9</u>	<u>26</u>				
P 5 <u>20</u>	<u>23</u>	<u>12</u>	<u>26</u>				
P 6 <u>25</u>	<u>23</u>	<u>15</u>	<u>29</u>				
P 7 <u>30</u>	<u>23</u>	<u>18</u>	<u>30</u>				
P 8 _____		<u>21</u>	<u>31</u>				
P 9 _____		<u>24</u>	<u>33</u>				
P10 _____		<u>27</u>	<u>34</u>				
P11 _____		<u>30</u>	<u>36</u>				
P12 _____		<u>33</u>	<u>37</u>				
P13 _____		<u>36</u>	<u>39</u>				
P14 _____		<u>39</u>	<u>41</u>				
P15 _____		<u>42</u>	<u>42</u>				
P16 _____		<u>45</u>	<u>43</u>				
P17 _____		<u>48</u>	<u>44</u>				
P18 _____		<u>51</u>	<u>45</u>				
P19 _____		<u>54</u>	<u>46</u>				
P20 _____		<u>57</u>	<u>48</u>				
WTC - 4		<u>60</u>	<u>49</u>				