WESTERN TESTERS

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

Company Abercrombie Drilling Co. Lease & Well No. Livengood #1

Elevation Formation Kansas City Effective Pay Ft. Ticket No. 20228

Date 10-20-74 Sec. 23 Twp. 27S Range 18W County Kiowa State Kansas

Test Approved by Harold Steincamp Western Representative Dean Blagrave

Formation Test No. 1 O.K. X Misrun Interval Tested From 4156' to 4165' Total Depth 4165'

Size Main Hole 7 7/8 Rat Hole Conv. B.T. X Damaged Yes X No Conv. B.T. X Damaged Yes X No

Top Packer Depth 4151 Ft. Size 6 3/4 Bottom Packer Depth 4156 Ft. Size 6 3/4

Straddle No Conv. B.T. Damaged Yes No Packer Depth Ft. Size

Tool Size 5½ OD Tool Joint Size FH Anchor Length 9 Ft. Size 5½ OD Surface Choke Size ¼ In. Bottom Choke Size 3/4 In.

RECORDERS Depth 4159 Ft. Clock No. 9712 Depth 4162 Ft. Clock No. 6897

Top Make Kuster Cap. 6600 No. 1564 Inside ~~Outside~~ Bottom Make Kuster Cap. 6200 No. 1563 ~~Inside~~ Outside

Below Straddle: Depth Rec. No. Clock No. Inside Outside Depth Ft. Rec. No. Clock No. Inside Outside

Time Set Packer 10:20 P M

Tool Open I.F.P. From 10:22 M. to 10:37 M. Hr. 15 Min. From (B) 53 P.S.I. To (C) 53 P.S.I.

Tool Closed I.C.I.P. From 10:37 M. to 11:22 M. Hr. 45 Min (D) 421 P.S.I.

Tool Open F.F.P. From 11:22 M. to 12:22 M. Hr. 60 Min. From (E) 41 P.S.I. To (F) 57 P.S.I.

Tool Closed F.C.I.P. From 12:22 M. to 1:07 M. Hr. 45 Min. (G) 354 P.S.I.

Initial Hydrostatic Pressure (A) 2219 P.S.I. Final Hydrostatic Pressure (H) 2137 P.S.I. Maximum Temp.

INFORMATION

BLOW Good throughout of air.

Did Well Flow Yes X No Recovery Total Ft. 20 feet gassy mud.

Reversed Out Yes No Mud Type starch Viscosity 44 Weight 9.7 Water Loss 16 cc. Chlorides 67,000

EXTRA EQUIPMENT: Type Circ. Sub. Pin Safety Joint NO Jars: Size 4½ In. Make WTC Ser. No. 410

Dual Packer Yes Did Packers Hold? YES Did Tool Plug? No Where?

DRILLING CONTRACTOR Abercrombie #11 Length Drill Pipe? 3735 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size FH In.

Length Weight Pipe 427 Ft. I.D. Weight Pipe 3 XXX In. Tool Joint Size 4½ IF Length Drill Collars Ft. I.D. Drill Collars In.

Tool Joint Size In. Length D.S.T. Tool 33 Ft.

Remarks:

FORM WTC 3

WESTERN TESTING CO., INC.
Pressure Data

Date 10-20-74 Test Ticket No. 20228

Recorder No. 1564 Capacity 6600 Location 4159 Ft.

Clock No. 9712 Elevation Well Temperature °F

Point		Pressure		Time Given	Time Computed
A	Initial Hydrostatic Mud	2219 P.S.I.	Open Tool	10:22PM	
B	First Initial Flow Pressure	53 P.S.I.	First Flow Pressure	15 Mins.	15 Mins.
C	First Final Flow Pressure	53 P.S.I.	Initial Closed-in Pressure	45 Mins.	42 Mins.
D	Initial Closed-in Pressure	421 P.S.I.	Second Flow Pressure	60 Mins.	60 Mins.
E	Second Initial Flow Pressure	57 P.S.I.	Final Closed-in Pressure	45 Mins.	42 Mins.
F	Second Final Flow Pressure	47 P.S.I.			
G	Final Closed-in Pressure	354 P.S.I.			
H	Final Hydrostatic Mud	2137 P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure
Breakdown: 3 Inc. of 5 mins. and a final inc. of 0 Min.

Initial Shut-In
Breakdown: 14 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 0 Min.

Final Shut-In
Breakdown: 14 Inc. of 3 mins. and a final inc. of 0 Min.

Point	First Flow Pressure Mins.	First Flow Pressure Press.	Initial Shut-In Minutes	Initial Shut-In Press.	Second Flow Pressure Minutes	Second Flow Pressure Press.	Final Shut-In Minutes	Final Shut-In Press.
P 1	0	53	0	53	0	57	0	57
P 2	5	53	3	124	5	57	3	74
P 3	10	53	6	164	10	57	6	105
P 4	15	53	9	189	15	57	9	127
P 5			12	225	20	57	12	154
P 6			15	254	25	57	15	177
P 7			18	280	30	57	18	202
P 8			21	305	35	57	21	222
P 9			24	318	40	57	24	241
P10			27	344	45	57	27	282
P11			30	360	50	57	30	302
P12			33	379	55	57	33	322
P13			36	391	60	57	36	334
P14			39	415			39	344
P15			42	421			32	354
P16								
P17								
P18								
P19								
P20								

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

Company Abercrombie Drilling Co., Inc. Lease & Well No. Livengood #1

Elevation 2172 Derrick Floor Formation Mississippian Effective Pay ____ Ft. Ticket No. 21061

Date 10-24-74 Sec. 23 Twp. 27S Range 18W County Kiowa State Kansas

Test Approved by Harold Steincamp Western Representative Kenneth Cheney

Formation Test No. 2 O.K. X Misrun ____ Interval Tested From 4693' to 4744' Total Depth 4790'

Size Main Hole 7 7/8" Hole ____ Conv. ____ B.T. X Damaged ____ Yes X No Conv. X B.T. ____ Damaged ____ Yes X No

Top Packer Depth 4692 Ft. Size 6 3/4" Bottom Packer Depth 4697 Ft. Size 6 3/4"

Straddle Yes Conv. X B.T. ____ Damaged ____ Yes X No Packer Depth 4748 Ft. Size 6 3/4"

Tool Size 5½" OD Tool Joint Size 4½" FH Anchor Length 51 Ft. Size 5½" OD Surface Choke Size ____ In. Bottom Choke Size 3/4 In.

RECORDERS Depth 4732 Ft. Clock No. 6896 Depth 4734 Ft. Clock No. 6893

Top Make Kuster Cap. 4500 No. 3086 Inside ~~Outside~~ Bottom Make Kuster Cap. 4150 No. 1558 ~~Inside~~ Outside

Below Straddle: Depth 4785 Rec. No. 26 Clock No. 104 Inside ~~Outside~~ Depth 4788 Ft. Rec. No. 40 Clock No. 130 Inside ~~Outside~~

Time Set Packer 9:19 A.M

Tool Open I.F.P. From 9:20 M. to 9:40A.M. Hr. 20 Min. From (B) 92 P.S.I. To (C) 75 P.S.I.

Tool Closed I.C.I.P. From 9:40 M. to 10:25A.M. Hr. 45 Min (D) 1375 P.S.I.

Tool Open F.F.P. From 10:25 M. to 11:25A. 1 Hr. ____ Min. From (E) 65 P.S.I. To (F) 23 P.S.I.

Tool Closed F.C.I.P. From 11:25 M. to 12:10P. Hr. 45 Min. (G) 1081 P.S.I.

Initial Hydrostatic Pressure (A) 2536 P.S.I. Final Hydrostatic Pressure (H) 2449 P.S.I. Maximum Temp. 117

INFORMATION

BLOW Strong gas in 3 min. (See attached sheet)

Did Well Flow X Yes ____ No Recovery Total Ft. 65 feet mud

Reversed Out ____ Yes X No Mud Type Impermax Viscosity 42 Weight 10.0 Water Loss 24.0 cc. Chlorides 59,000

EXTRA EQUIPMENT: Type Circ. Sub. Pin Safety Joint No Jars: Size ____ In. Make ____ Ser. No. ____

Dual Packer Yes Did Packers Hold? Yes Did Tool Plug? No Where? ____

DRILLING CONTRACTOR Company Rig Length Drill Pipe? 3512 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size 4½ In.

Length Weight Pipe 461 Ft. I.D. Weight Pipe 3.0 In. Tool Joint Size 4½ In. Length Drill Collars ____ Ft. I.D. Drill Collars ____ In.

Tool Joint Size ____ In. Length D.S.T. Tool 117 Ft.

Remarks: Gas gauged 215,000 down to 158,000 C.F.P.D. in 1 hr. and 30 min.
Gas sample bottle # 613

FORM WTC 3

WESTERN TESTING CO., INC.
Pressure Data

Date 10-24-74 Test Ticket No. 21061

Recorder No. 3086 Capacity 4500 Location 4732 Ft.

Clock No. 6896 Elevation 2172 Derrick Floor Well Temperature 117 °F

Point		Pressure		Time Given	Time Computed
A	Initial Hydrostatic Mud	2536 P.S.I.	Open Tool	9:20A.M	
B	First Initial Flow Pressure	92 P.S.I.	First Flow Pressure	20 Mins.	20 Mins.
C	First Final Flow Pressure	75 P.S.I.	Initial Closed-in Pressure	45 Mins.	45 Mins.
D	Initial Closed-in Pressure	1375 P.S.I.	Second Flow Pressure	60 Mins.	55 Mins.
E	Second Initial Flow Pressure	65 P.S.I.	Final Closed-in Pressure	45 Mins.	45 Mins.
F	Second Final Flow Pressure	23 P.S.I.			
G	Final Closed-in Pressure	1081 P.S.I.			
H	Final Hydrostatic Mud	2449 P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure
Breakdown: 4 Inc. of 5 mins. and a final inc. of 0 Min.

Point Mins.	Press.
P 1 0	92
P 2 5	59
P 3 10	73
P 4 15	87
P 5 20	75
P 6	
P 7	
P 8	
P 9	
P10	
P11	
P12	
P13	
P14	
P15	
P16	
P17	
P18	
P19	
P20	

Initial Shut-In
Breakdown: 15 Inc. of 3 mins. and a final inc. of 0 Min.

Point Minutes	Press.
0	75
3	613
6	972
9	1148
12	1227
15	1262
18	1287
21	1306
24	1319
27	1331
30	1342
33	1350
36	1359
39	1363
42	1369
45	1375

Second Flow Pressure
Breakdown: 11 Inc. of 5 mins. and a final inc. of 0 Min.

Point Minutes	Press.
0	65
5	30
10	23
15	23
20	23
25	23
30	23
35	23
40	23
45	23
50	23
55	23

Final Shut-In
Breakdown: 15 Inc. of 3 mins. and a final inc. of 0 Min.

Point Minutes	Press.
0	23
3	388
6	662
9	801
12	883
15	927
18	953
21	976
24	993
27	1010
30	1020
33	1037
36	1051
39	1061
42	1068
45	1081

WESTERN TESTERS

P. O. BOX 793
GREAT BEND, KANSAS

COMPANY Abercrombie Drlg., Co., Inc. LEASE & WELL NO. Livengood #1

TEST NO. 2 INTERVAL TESTED FROM 4693' TO 4744'

Total depth 4790'

TIME PRE-FLOW	MAX PRESS. P.S.I.	DESCRIPTION OF FLOW
Tool open		
@ 9:20 A.M.		
Gas @ 9:23		
9:30-10 min.	24 oz.	1¼" choke 215,000 C.F.P.D.
9:40-20 min.	"	" " " " "
Close tool		
SECOND FLOW		
Tool open @		
10:25		
10:35-10Min.	26 oz.	1¼" choke 224,000 C.F.P.D.
10:45-20 "	24 "	" " 215,000 "
10:55-30 "	22 "	" " 206,000 "
11:05-40 "	17 "	" " 181,000 "
11:15-50 "	15 "	" " 170,000 "
11:25-60 "	13 "	" " 158,000 "

SIZE CHOKE _____ SURFACE _____ IN. _____ BOTTOM _____ IN. _____

REMARKS _____

FORM NO. WTC-6

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

Company Abercrombie Drilling Co. Lease & Well No. Livengood #1

Elevation 2172 Derrick Floor Formation Kansas City Effective Pay Ft. Ticket No. 21062

Date 10-24-78 Sec. 23 Twp. 27S Range 18W County Kiowa State Kansas

Test Approved by Harold Steincamp Western Representative Kenneth Cheney

Formation Test No. 3 O.K. X Misrun Interval Tested From 4498' to 4507' Total Depth 4790'

Size Main Hole 7 7/8 Rat Hole Conv. B.T. X Damaged Yes X No Conv. X B.T. Damaged Yes X No

Top Packer Depth 4493 Ft. Size 6 3/4 Bottom Packer Depth 4498 Ft. Size 6 3/4

Straddle Yes Conv. X B.T. Damaged Yes X No Packer Depth 4507 Ft. Size 6 3/4

Tool Size 5½ OD Tool Joint Size 4½ FH Anchor Length 9 Ft. Size 5½ OD Surface Choke Size 1 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 4490 Ft. Clock No. 6896 Depth 4504 Ft. Clock No. 6893

Top Make Kuster Cap. 4500 No. 3086 Inside ~~Outside~~ Bottom Make Kuster Cap. 4150 No. 1558 ~~Inside~~ Outside

Below Straddle: Depth 4785 Rec. No. 24 Clock No. 104 Inside ~~Outside~~ Depth 4788 Ft. Rec. No. 59 Clock No. 41 ~~Inside~~ Outside

Time Set Packer 5:49 PM

Tool Open I.F.P. From 5:50 M. to 6:05 M. Hr. 15 Min. From (B) 30 P.S.I. To (C) 94 P.S.I.

Tool Closed I.C.I.P. From 6:05 M. to 6:50 M. Hr. 45 Min (D) 1527 P.S.I.

Tool Open F.F.P. From 6:50 M. to 7:50 M. Hr. 60 Min. From (E) 126 P.S.I. To (F) 267 P.S.I.

Tool Closed F.C.I.P. From 7:50 M. to 8:35 M. Hr. 45 Min. (G) 1489 P.S.I.

Initial Hydrostatic Pressure (A) 2458 P.S.I. Final Hydrostatic Pressure (H) 2378 P.S.I. Maximum Temp. 115

INFORMATION

BLOW Strong.

Did Well Flow Yes X No Recovery Total Ft. 120 feet gas in pipe; 588 feet salt water.

Reversed Out Yes X No Mud Type Impermix Viscosity 41 Weight 10 Water Loss 24 cc. Chlorides 59,000

EXTRA EQUIPMENT: Type Circ. Sub Pin Safety Joint No Jars: Size In. Make Ser. No.

Dual Packer Yes Did Packers Hold? Yes Did Tool Plug? No Where?

DRILLING CONTRACTOR Company tools. Length Drill Pipe? 4298 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size 4½ In.

Length Weight Pipe 180 Ft. I.D. Weight Pipe 2.7 In. Tool Joint Size 4½ In. Length Drill Collars Ft. I.D. Drill Collars In.

Tool Joint Size In. Length D.S.T. Tool 312 Ft.

Remarks:

FORM WTC 3

WESTERN TESTING CO., INC.
Pressure Data

Date 10-24-74 Test Ticket No. 21062

Recorder No. 3086 Capacity 4500 Location 4490 Ft.

Clock No. 6896 Elevation 2172 Derrick Floor Well Temperature 115 °F

Point		Pressure		Time Given	Time Computed
A	Initial Hydrostatic Mud	2458 P.S.I.	Open Tool	5:50PM	
B	First Initial Flow Pressure	30 P.S.I.	First Flow Pressure	15 Mins.	15 Mins.
C	First Final Flow Pressure	94 P.S.I.	Initial Closed-in Pressure	45 Mins.	45 Mins.
D	Initial Closed-in Pressure	1527 P.S.I.	Second Flow Pressure	60 Mins.	60 Mins.
E	Second Initial Flow Pressure	126 P.S.I.	Final Closed-in Pressure	45 Mins.	45 Mins.
F	Second Final Flow Pressure	267 P.S.I.			
G	Final Closed-in Pressure	1489 P.S.I.			
H	Final Hydrostatic Mud	2378 P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: 3 Inc.		Breakdown: 15 Inc.		Breakdown: 12 Inc.		Breakdown: 15 Inc.	
of 5 mins. and a		of 3 mins. and a		of 5 mins. and a		of 3 mins. and a	
final inc. of 0 Min.		final inc. of 0 Min.		final inc. of 0 Min.		final inc. of 0 Min.	
Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	30	0	94	0	126	0	267
P 2 5	47	3	1374	5	130	3	1339
P 3 10	75	6	1439	10	143	6	1399
P 4 15	94	9	1465	15	160	9	1427
P 5		12	1481	20	172	12	1443
P 6		15	1493	25	187	15	1451
P 7		18	1502	30	201	18	1460
P 8		21	1509	35	215	21	1467
P 9		24	1510	40	226	24	1469
P10		27	1516	45	239	27	1473
P11		30	1518	50	252	30	1475
P12		33	1523	55	258	33	1479
P13		36	1525	60	267	36	1481
P14		39	1525			39	1483
P15		42	1526			42	1486
P16		45	1527			45	1489
P17							
P18							
P19							
P20							

WESTERN TESTERS

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

Company Abercrombie Drilling Co. Lease & Well No. Livengood #1

Elevation 2174 Derrick Floor Formation Kansas City Effective Pay Ft. Ticket No. 21063

Date 10-25-74 Sec. 23 Twp. 27S Range 18W County Kiowa State Kansas

Test Approved by C.F. Bogheart Western Representative Kenneth Cheney

Formation Test No. 4 O.K. X Misrun Interval Tested From 4169' to 4195' Total Depth 4790'

Size Main Hole 7 7/8 Rat Hole Conv. X B.T. Damaged Yes X No Conv. B.T. X Damaged Yes X No

Top Packer Depth 4164 Ft. Size 6 3/4 Bottom Packer Depth 4169 Ft. Size 6 3/4

Straddle Yes Conv. X B.T. Damaged Yes X No Packer Depth 4195 Ft. Size 6 3/4

Tool Size 5½ OD Tool Joint Size 4½ FH Anchor Length 26 Ft. Size 5½ OD Surface Choke Size 1 In. Bottom Choke Size 3/4 In.

RECORDERS Depth 4179 Ft. Clock No. 6896 Depth 4181 Ft. Clock No. 6893

Top Make Kuster Cap. 4500 No. 3086 Inside ~~Outside~~ Bottom Make Kuster Cap. 4150 No. 1558 ~~Inside~~ Outside

Below Straddle: Depth 4785 Rec. No. 24 Clock No. 104 Inside Outside Depth 4788 Ft. Rec. No. 59 Clock No. 41 Inside Outside

Time Set Packer 1:59A M

Tool Open I.F.P. From 2:00 M. to 2:15 M. Hr. 15 Min. From (B) 15 P.S.I. To (C) 15 P.S.I.

Tool Closed I.C.I.P. From 2:15 M. to 3:00 M. Hr. 45 Min (D) 199 P.S.I.

Tool Open F.F.P. From 3:00 M. to 4:15 M. Hr. 75 Min. From (E) 17 P.S.I. To (F) 32 P.S.I.

Tool Closed F.C.I.P. From 4:15 M. to 5:00 M. Hr. 45 Min. (G) 148 P.S.I.

Initial Hydrostatic Pressure (A) 2183 P.S.I. Final Hydrostatic Pressure (H) 2146 P.S.I. Maximum Temp.

INFORMATION

BLOW Strong for 15 minutes on FFP and died; flushed tool twice. At the end of the hour it started to blow strong for 5 minutes.

Did Well Flow Yes X No Recovery Total Ft. 1464 feet gas inpipe; 70 feet mud.

Reversed Out Yes X No Mud Type Impermix Viscosity 42 Weight 10.0 Water Loss 24.0 cc. Chlorides 59,000

EXTRA EQUIPMENT: Type Circ. Sub. Pin Safety Joint No Jars: Size In. Make Ser. No.

Dual Packer Yes Did Packers Hold? Yes Did Tool Plug? No Where?

DRILLING CONTRACTOR Company tools Length Drill Pipe? 4148 Ft. I.D. Drill Pipe 3.8 In. Tool Joint Size 4½ In.

Length Weight Pipe Ft. I.D. Weight Pipe In. Tool Joint Size In. Length Drill Collars Ft. I.D. Drill Collars In.

Tool Joint Size In. Length D.S.T. Tool 642 Ft.

Remarks:

FORM WTC 3

WESTERN TESTING CO., INC.
Pressure Data

Date 10-25-74 Test Ticket No. 21063

Recorder No. 3086 Capacity 4500 Location 4179 Ft.

Clock No. 6896 Elevation 2174 Derrick Floor Well Temperature °F

Point		Pressure		Time Given	Time Computed
A	Initial Hydrostatic Mud	2183 P.S.I.	Open Tool	2:00 AM	
B	First Initial Flow Pressure	15 P.S.I.	First Flow Pressure	15 Mins.	15 Mins.
C	First Final Flow Pressure	15 P.S.I.	Initial Closed-in Pressure	45 Mins.	39 Mins.
D	Initial Closed-in Pressure	199 P.S.I.	Second Flow Pressure	75 Mins.	75 Mins.
E	Second Initial Flow Pressure	17 P.S.I.	Final Closed-in Pressure	45 Mins.	42 Mins.
F	Second Final Flow Pressure	32 P.S.I.			
G	Final Closed-in Pressure	148 P.S.I.			
H	Final Hydrostatic Mud	2146 P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure
Breakdown: 3 Inc. of 5 mins. and a final inc. of 0 Min.

Initial Shut-In
Breakdown: 13 Inc. of 3 mins. and a final inc. of 0 Min.

Second Flow Pressure
Breakdown: 15 Inc. of 5 mins. and a final inc. of 0 Min.

Final Shut-In
Breakdown: 14 Inc. of 3 mins. and a final inc. of 0 Min.

Point	First Flow Pressure Mins.	First Flow Pressure Press.	Initial Shut-In Point Minutes	Initial Shut-In Press.	Second Flow Pressure Point Minutes	Second Flow Pressure Press.	Final Shut-In Point Minutes	Final Shut-In Press.
P 1	0	15	0	15	0	17	0	32
P 2	5	15	3	46	5	10X	3	48
P 3	10	15	6	77	10	17	6	60
P 4	15	15	9	98	15	17	9	73
P 5			12	113	20	17	12	82
P 6			15	125	25	17	15	92
P 7			18	136	30	17	18	98
P 8			21	149	35	112	21	106
P 9			24	158	40	163	24	112
P10			27	165	45	184	27	118
P11			30	175	50	206	30	125
P12			33	183	55	193	33	131
P13			36	193	60	191	36	137
P14			39	199	65	34	39	144
P15					70	33	42	148
P16					75	32		
P17								
P18								
P19								
P20								