

DATE 8-12-77

THUNDERBIRD DRILLING, INC.

TESTING DIVISION

TICKET N^o **814**

SEC. 31 TWN 19-S RG 22-W

BOX 18407 PHONE 316 685-1441

LEGAL DESCRIPTION NE SW

WICHITA, KANSAS 67218

TEST NO. 1

COMPANY Thunderbird Drilling, Inc.

ADDRESS Box 18407, Wichita, Ks. 67218

LEASE Steinert WELL NO. 1 COUNTY Ness STATE Ks.

INVOICES SENT TO: Jamp

DST COPIES SENT TO: "

4 1/2" X. H. GENERAL INFORMATION		PRESSURE DATA & TIME	
		FIELD READINGS	CORRECTED READINGS
TOOL JT. <u>F.H.</u>	HOLE SIZE <u>7 7/8"</u> PACKER O.D. <u>6 3/4"</u>	INITIAL HYDROSTATIC <u>2207</u>	<u>2210</u>
ELEV. _____	TOTAL DEPTH <u>4220'</u>	INITIAL 1ST FLOW <u>78</u>	<u>77</u>
TESTED FROM <u>4120'</u>	TO <u>4220'</u>	FINAL 1ST FLOW <u>78</u>	<u>78</u>
ANCHOR LENGTH BELOW <u>100'</u>	BETWEEN <input checked="" type="checkbox"/>	INITIAL SHUT-IN <u>112</u>	<u>112</u>
TOOL OPEN 1ST FLOW <u>2:50</u>	A.M. _____ P.M. _____	INITIAL 2ND FLOW <u>78</u>	<u>80</u>
TOOL CLOSED INITIAL SHUT-IN <u>3:20</u>	A.M. _____ P.M. _____	FINAL 2ND FLOW <u>78</u>	<u>80</u>
TOOL OPEN 2ND FLOW <u>3:50</u>	A.M. _____ P.M. _____	FINAL SHUT-IN <u>87</u>	<u>88</u>
TOOL CLOSED FINAL SHUT-IN <u>4:20</u>	A.M. _____ P.M. _____	FINAL HYDROSTATIC <u>2207</u>	<u>2204</u>
MUD WT <u>9.4</u>	VISCOSITY <u>40</u> W.L. <u>12</u> C.C.	TOOL OPEN: 1ST FLOW _____	HR. <u>30</u> MIN.
SP. GRAVITY OIL _____	BOTTOM HOLE TEMPERATURE <u>114°</u>	INITIAL SHUT-IN _____	HR. <u>30</u> MIN.
LENGTH DRILL COLLAR <input checked="" type="checkbox"/>	I.D. <input checked="" type="checkbox"/>	2ND FLOW _____	HR. <u>30</u> MIN.
LENGTH WEIGHT PIPE <u>5-75'</u>	I.D. <u>2.76</u>	FINAL SHUT-IN _____	HR. <u>30</u> MIN.
SUCCESSFUL TEST NO. <u>1</u>	MISRUN NO. <input checked="" type="checkbox"/>	TOP RECORDER NO. <u>2162</u>	BOTTOM RECORDER NO. <u>4333</u>
CHOKES: TOP <u>1/2"</u>	BOTTOM <u>1/2"</u>		

TYPE BLOW Weak blow for 3 mins.

RECOVERY: 10' of mud

EXTRA EQUIPMENT None

APPROVED BY: [Signature]
TESTER: [Signature]

FORMATION TESTED M&M.

OPERATOR TIME: _____

THUNDERBIRD DRILLING, INC.
SHALL NOT BE LIABLE FOR ANY DAMAGE OF ANY KIND TO THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE. OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST WAS MADE.

CHARGES	
TEST CHARGE	\$ <u>400⁰⁰</u>
EXTRA PACKERS	\$ _____
JARS	\$ _____
SAFETY JOINT	\$ _____
HOOK WALL	\$ _____
MISRUN CHARGE	\$ _____
STAND-BY CHARGE	\$ _____
DST EVALUATION	\$ _____
STRADDLE	\$ _____
TOTAL	\$ <u>400⁰⁰</u>

THUNDERBIRD DRLG., INC.
TESTING DIVISION
Box 18407
WICHITA, KANSAS

Company Thunderbird Drilling, Inc.

Lease and Well No. Steinert No. 1

County Ness State Kansas Date 8-12-77

Formation Test No. 1 Total Depth 4220' Elev. _____

Interval Tested 4120' To 4220' Anchor Length 100'

Size Hole 7 7/8" Size Drill Pipe 4 1/2" XH FH Size Packer 6 3/4"

Mud Weight 9.4 Viscosity 40 Water Loss 12. c.c. Bottom Hole Temp. 114 ° F

Chokes: Top 1/2" Bottom 1/2" Ticket No. 814

RECOVERY

Blow: Weak blow for 3 minutes.

Recovery: 10' of mud.

Lease and Well No. Steinert No. 1 Sec 31 Twn 19-S Rg 22-W

NE SW

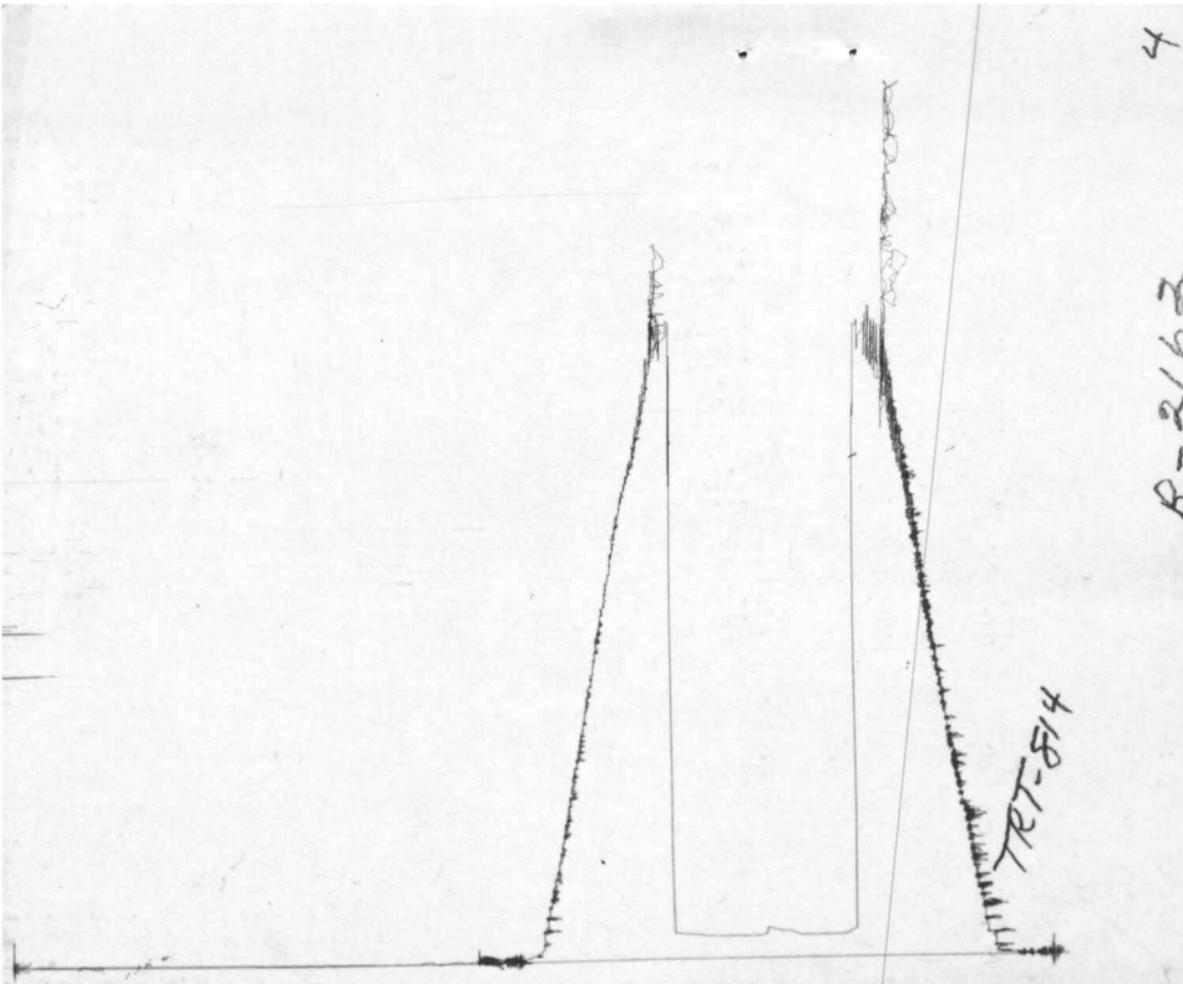
Formation Test No. _____

1

Tool Open: 1st Flow hr. 30 mins: Shut-in Initial hr. 30 min: 2nd Flow hr. 30 min: Shut-in Final hr. 30 min.

	Field Reading	Corrected Reading
(A) Initial Hydrostatic Pressure	<u>2207</u>	<u>2210</u>
(B) Initial 1st Flow Pressure	<u>78</u>	<u>77</u>
(C) Final 1st Flow Pressure	<u>78</u>	<u>78</u>
(D) Initial Shut-in Pressure	<u>117</u>	<u>112</u>
(E) Initial 2nd Flow Pressure	<u>78</u>	<u>80</u>
(F) Final 2nd Flow Pressure	<u>78</u>	<u>80</u>
(G) Final Shut-in Pressure	<u>87</u>	<u>88</u>
(H) Final Hydrostatic Pressure	<u>2207</u>	<u>2204</u>

Ticket #814



TRT-814

R-2162

4

DATE 8-13-77

THUNDERBIRD DRILLING, INC.

TESTING DIVISION

TICKET N^o 815

SEC. 31 TWN 19-S RG 22-W

BOX 18407 PHONE 316 685-1441

LEGAL DESCRIPTION _____

WICHITA, KANSAS 67218

TEST NO. 2

COMPANY Thunderbird Drlg. Inc.

ADDRESS Box 18407; Wichita, Ka. 67218

LEASE Steinert WELL NO. 1 COUNTY Ness STATE Ks.

INVOICES SENT TO: Same

DST COPIES SENT TO: "

GENERAL INFORMATION		PRESSURE DATA & TIME	
TOOL JT. <u>F.H.</u>	HOLE SIZE <u>7 7/8"</u> PACKER O.D. <u>6 3/4"</u>	FIELD READINGS	CORRECTED READINGS
ELEV. _____	TOTAL DEPTH <u>4215'</u>	INITIAL HYDROSTATIC <u>2259</u>	<u>2259</u>
TESTED FROM <u>4272'</u>	TO <u>4315'</u>	INITIAL 1ST FLOW <u>52</u>	<u>52</u>
ANCHOR LENGTH BELOW <u>43'</u>	BETWEEN <u>✓</u>	FINAL 1ST FLOW <u>52</u>	<u>52</u>
TOOL OPEN 1ST FLOW <u>12:50</u>	A.M. _____ P.M. _____	INITIAL SHUT-IN <u>61</u>	<u>63</u>
TOOL CLOSED INITIAL SHUT-IN <u>1:20</u>	A.M. _____ P.M. _____	INITIAL 2ND FLOW <u>52</u>	<u>54</u>
TOOL OPEN 2ND FLOW <u>1:50</u>	A.M. _____ P.M. _____	FINAL 2ND FLOW <u>52</u>	<u>54</u>
TOOL CLOSED FINAL SHUT-IN <u>2:20</u>	A.M. _____ P.M. _____	FINAL SHUT-IN <u>52</u>	<u>54</u>
MUD WT <u>9.6</u>	VISCOSITY <u>44</u> W.L. <u>12</u> C.C.	FINAL HYDROSTATIC <u>2241</u>	<u>2245</u>
SP. GRAVITY OIL _____	BOTTOM HOLE TEMPERATURE <u>116°</u>	TOOL OPEN: 1ST FLOW _____	HR. <u>30</u> MIN.
LENGTH DRILL COLLAR _____	I.D. _____	INITIAL SHUT-IN _____	HR. <u>30</u> MIN.
LENGTH WEIGHT PIPE <u>5-75"</u>	I.D. <u>2.76</u>	2ND FLOW _____	HR. <u>30</u> MIN.
SUCCESSFUL TEST NO. <u>2</u>	MISRUN NO. <u>✓</u>	FINAL SHUT-IN _____	HR. <u>30</u> MIN.
CHOKES: TOP <u>1/2"</u>	BOTTOM <u>1/2"</u>	TOP RECORDER NO. <u>2162</u>	BOTTOM RECORDER NO. <u>4333</u>

TYPE BLOW Weak blow for 5 mins.

RECOVERY: 10' of mud

EXTRA EQUIPMENT None

APPROVED BY: _____ THUNDERBIRD DRILLING, INC.

TESTER: Ed Cook

FORMATION TESTED H. Scott

OPERATOR TIME: _____

SHALL NOT BE LIABLE FOR ANY DAMAGE OF ANY KIND TO THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE. OR FOR ANY LOSS SUFFERED OR SUSTAINED. DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST WAS MADE.

CHARGES	
TEST CHARGE	\$ <u>400.00</u>
EXTRA PACKERS	\$ _____
JARS	\$ _____
SAFETY JOINT	\$ _____
HOOK WALL	\$ _____
MISRUN CHARGE	\$ _____
STAND-BY CHARGE	\$ _____
DST EVALUATION	\$ _____
STRADDLE	\$ _____
TOTAL	\$ <u>400.00</u>

THUNDERBIRD DRLG., INC.
TESTING DIVISION
Box 18407
WICHITA, KANSAS

Company Thunderbird Drilling, Inc.

Lease and Well No. Steinert No. 1

County Ness State Kansas Date 8-13-77

Formation Test No. 2 Total Depth 4315' Elev. _____

Interval Tested 4272' To 4315' Anchor Length 43'

Size Hole 7 7/8" Size Drill Pipe 4 1/2" XH FH Size Packer 6 3/4"

Mud Weight 9.6 Viscosity 44 Water Loss 12. c.c. Bottom Hole Temp. 116 ° F

Chokes: Top 1/2" Bottom 1/2" Ticket No. 815

RECOVERY

Blow: Weak blow for 5 minutes.

Recovery: 10' of mud.

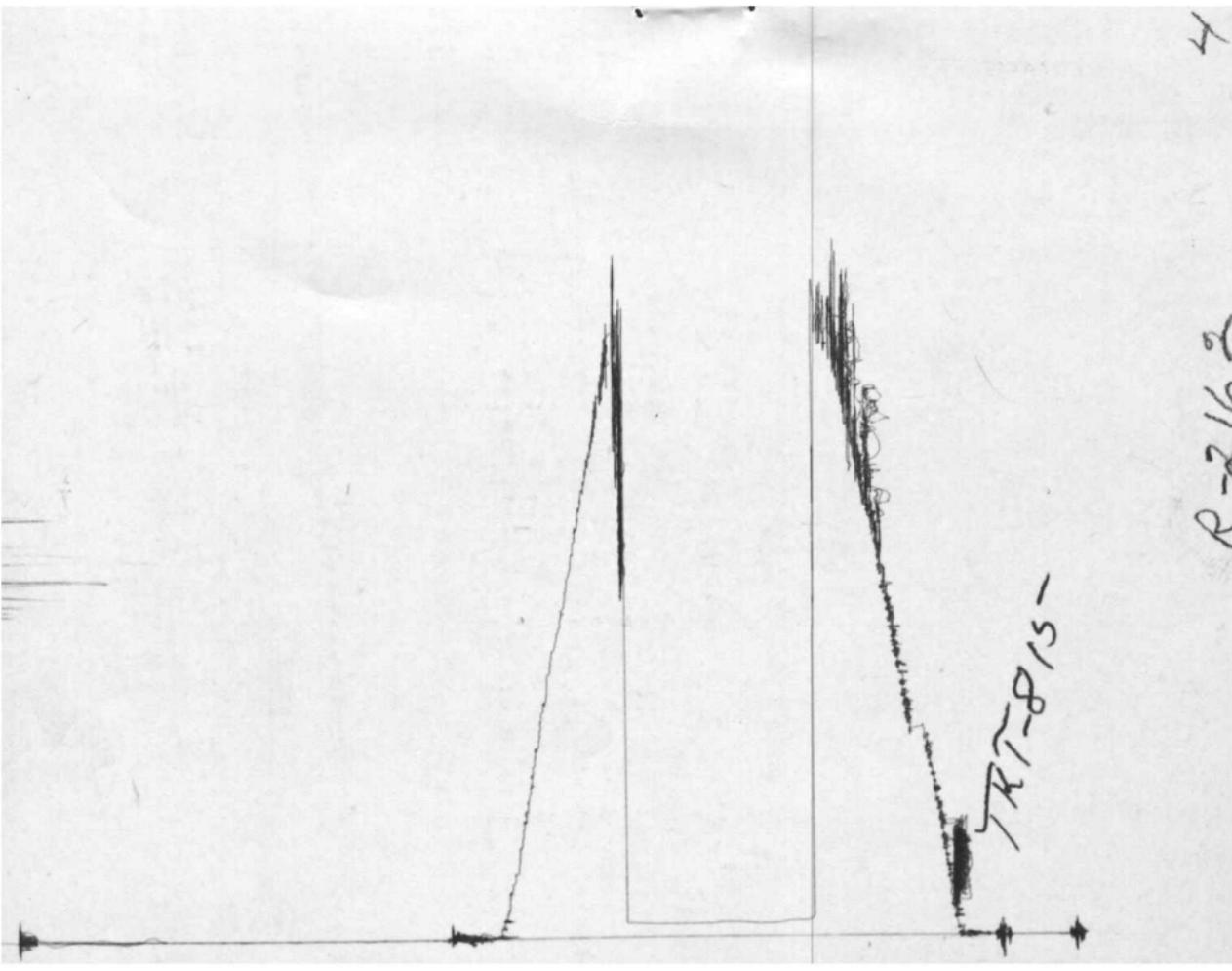
Lease and Well No. Steinert no. 1 Sec 31 Twn 19-S Rg 22-W
NE SW

Formation Test No. 2

Tool Open: 1st Flow hr. 30 mins: Shut-in Initial hr. 30 min: 2nd Flow hr. 30 min: Shut-in Final hr. 30 min.

	Field Reading	Corrected Reading
(A) Initial Hydrostatic Pressure	<u>2259</u>	<u>2259</u>
(B) Initial 1st Flow Pressure	<u>52</u>	<u>52</u>
(C) Final 1st Flow Pressure	<u>52</u>	<u>52</u>
(D) Initial Shut-in Pressure	<u>61</u>	<u>63</u>
(E) Initial 2nd Flow Pressure	<u>52</u>	<u>54</u>
(F) Final 2nd Flow Pressure	<u>52</u>	<u>54</u>
(G) Final Shut-in Pressure	<u>52</u>	<u>54</u>
(H) Final Hydrostatic Pressure	<u>2241</u>	<u>2245</u>

Ticket #815



RT-815-

R-2162

4

DATE 8-13-77

THUNDERBIRD DRILLING, INC.

TESTING DIVISION

TICKET N^o **816**

SEC. 31 TWN 19-S RG 22-W

BOX 18407 PHONE 316 685-1441

LEGAL DESCRIPTION _____

WICHITA, KANSAS 67218

TEST NO. 3

COMPANY Thunderbird Drllg. Inc.
 ADDRESS Box 18407; Wichita, Ks. 67218
 LEASE Steinert WELL NO. 1 COUNTY Ness STATE Ks.
 INVOICES SENT TO: Same
 DST COPIES SENT TO: "

4 1/2" X.H. GENERAL INFORMATION		PRESSURE DATA & TIME	
		FIELD READINGS	CORRECTED READINGS
TOOL JT. <u>F.H.</u>	HOLE SIZE <u>7 7/8"</u> PACKER O.D. <u>6 3/4"</u>	INITIAL HYDROSTATIC	<u>2259</u> <u>2259</u>
ELEV. _____	TOTAL DEPTH <u>4395'</u>	INITIAL 1ST FLOW	<u>61</u> <u>61</u>
TESTED FROM <u>4345'</u>	TO <u>4395'</u>	FINAL 1ST FLOW	<u>61</u> <u>61</u>
ANCHOR LENGTH BELOW <u>50'</u>	BETWEEN <u>✓</u>	INITIAL SHUT-IN	<u>87</u> <u>87</u>
TOOL OPEN 1ST FLOW _____	A.M. <u>11:20</u> P.M. _____	INITIAL 2ND FLOW	<u>61</u> <u>62</u>
TOOL CLOSED INITIAL SHUT-IN _____	A.M. <u>11:50</u> P.M. _____	FINAL 2ND FLOW	<u>61</u> <u>63</u>
TOOL OPEN 2ND FLOW _____	<u>12:20</u> A.M. <u>12:12</u> P.M. _____	FINAL SHUT-IN	<u>78</u> <u>78</u>
TOOL CLOSED FINAL SHUT-IN <u>12:50</u>	A.M. _____ P.M. _____	FINAL HYDROSTATIC	<u>2250</u> <u>2248</u>
MUD WT. <u>9.4</u>	VISCOSITY <u>47</u> W.L. <u>12</u> C.C. _____	TOOL OPEN: 1ST FLOW _____	HR. <u>30</u> MIN.
SP. GRAVITY OIL _____	BOTTOM HOLE TEMPERATURE <u>116°</u>	INITIAL SHUT-IN _____	HR. <u>30</u> MIN.
LENGTH DRILL COLLAR _____	I.D. <u>✓</u>	2ND FLOW _____	HR. <u>30</u> MIN.
LENGTH WEIGHT PIPE <u>5-75'</u>	I.D. <u>2.76</u>	FINAL SHUT-IN _____	HR. <u>30</u> MIN.
SUCCESSFUL TEST NO. <u>3</u>	MISRUN NO. <u>✓</u>	TOP RECORDER NO. <u>2162</u>	BOTTOM RECORDER NO. <u>4333</u>
CHOKES: TOP <u>1/2"</u>	BOTTOM <u>1/2"</u>		

TYPE BLOW Weak for 3 mins.

RECOVERY: 10' of mud

EXTRA EQUIPMENT None

APPROVED BY: _____

TESTER: Ed. Cook

FORMATION TESTED Miss.

OPERATOR TIME: _____

THUNDERBIRD DRILLING, INC.

SHALL NOT BE LIABLE FOR ANY DAMAGE OF ANY KIND TO THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST WAS MADE.

CHARGES	
TEST CHARGE	\$ <u>400</u>
EXTRA PACKERS	\$ _____
JARS	\$ _____
SAFETY JOINT	\$ _____
HOOK WALL	\$ _____
MISRUN CHARGE	\$ _____
STAND-BY CHARGE	\$ _____
DST EVALUATION	\$ _____
STRADDLE	\$ _____
TOTAL	\$ <u>400</u>

THUNDERBIRD DRLG., INC.

TESTING DIVISION

Box 18407

WICHITA, KANSAS

Company Thunderbird Drilling, Inc.

Lease and Well No. Steinert No. 1

County Ness State Kansas

Date 8-13-77

Formation Test No. <u>3</u>	Total Depth <u>4395'</u>	Elev. _____
Interval Tested <u>4345'</u>	To <u>4395'</u>	Anchor Length <u>50'</u>
Size Hole <u>7 7/8"</u>	Size Drill Pipe <u>4 1/2" XH FH</u>	Size Packer <u>6 3/4"</u>
Mud Weight <u>9.4</u>	Viscosity <u>47</u>	Water Loss <u>12.</u> c.c. Bottom Hole Temp. <u>116</u> ° F
Chokes: Top <u>1/2"</u>	Bottom <u>1/2"</u>	Ticket No. <u>816</u>

RECOVERY

Blow: Weak for 3 minutes.

Recovery: 10' of mud.

Lease and Well No. Steinert No. 1 Sec 31 Twn 19-S Rg 22-W

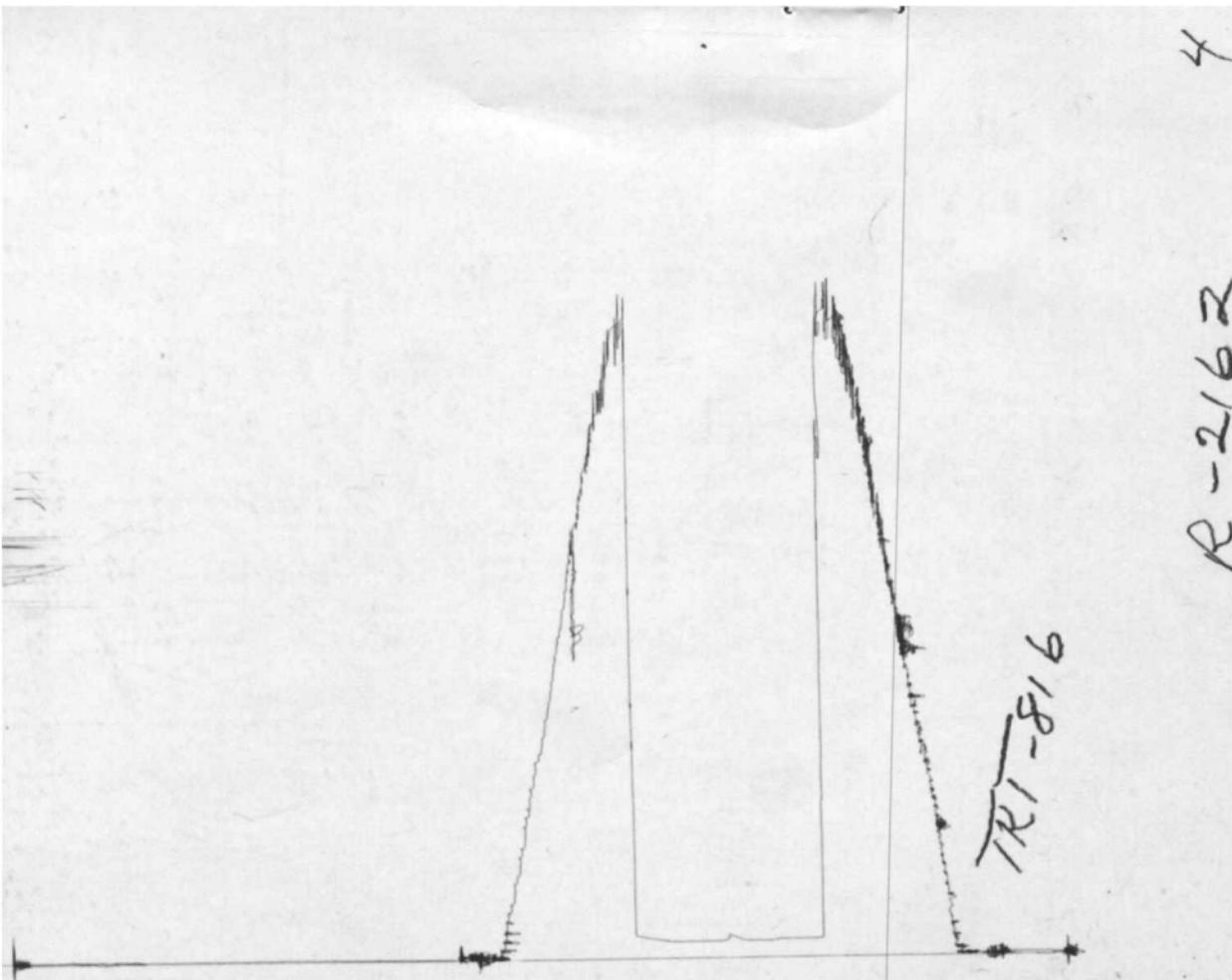
NE SW

Formation Test No. 3

Tool Open: 1st Flow hr. 30 mins: Shut-in Initial hr. 30 min: 2nd Flow hr. 30 min: Shut-in Final hr. 30 min.

	Field Reading	Corrected Reading
(A) Initial Hydrostatic Pressure	<u>2259</u>	<u>2259</u>
(B) Initial 1st Flow Pressure	<u>61</u>	<u>61</u>
(C) Final 1st Flow Pressure	<u>61</u>	<u>61</u>
(D) Initial Shut-in Pressure	<u>87</u>	<u>87</u>
(E) Initial 2nd Flow Pressure	<u>61</u>	<u>63</u>
(F) Final 2nd Flow Pressure	<u>61</u>	<u>63</u>
(G) Final Shut-in Pressure	<u>78</u>	<u>78</u>
(H) Final Hydrostatic Pressure	<u>2250</u>	<u>2248</u>

Ticket #816



TRT-816

R-2162

4

DATE 8-14-77

THUNDERBIRD DRILLING, INC.

TESTING DIVISION

TICKET No 817

SEC. 31 TWN 19-S RG 22-W

BOX 18407 PHONE 316 685-1441

LEGAL DESCRIPTION

WICHITA, KANSAS 67218

TEST NO. 4

COMPANY Thunderbird Drllg. Inc. ADDRESS Box 18407, Wichita, Mo. 67218 LEASE Steinert WELL NO. 1 COUNTY Ness STATE Mo. INVOICES SENT TO: Same DST COPIES SENT TO: "

Table with 2 main columns: GENERAL INFORMATION and PRESSURE DATA & TIME. Includes fields for tool joints, hole size, depth, flow rates, and pressure readings.

TYPE BLOW Work blow thru-out test. RECOVERY: 60' of Gas, 30' " Clean slightly Gassy Oil, 120' " Muddy Oil (35 Gravity Corrected)

EXTRA EQUIPMENT None APPROVED BY: THUNDERBIRD DRILLING, INC. TESTER: Ed Cook FORMATION TESTED Miss OPERATOR TIME:

Table with 2 columns: CHARGES and Amount. Includes rows for TEST CHARGE, EXTRA PACKERS, JARS, SAFETY JOINT, HOOK WALL, MISRUN CHARGE, STAND-BY CHARGE, DST EVALUATION, STRADDLE, and TOTAL.

SHALL NOT BE LIABLE FOR ANY DAMAGE OF ANY KIND TO THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE. OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST WAS MADE.

COMPANY Thunderbird Drilling Inc.

DATE 8-14-77

LEASE Steinert WELL NO. 1

TEST NO. 4

TICKET NO. 817

	TIME	PSI
INITIAL HYDRO MUD PRESSURE	—	2259
INITIAL CLOSED IN PRESSURE	45 mins	1251
INITIAL FLOW	" "	45 to 52
FINAL FLOW	" "	83 " 95
FINAL CLOSED IN PRESSURE	" "	1220
FINAL HYDRO MUD PRESSURE	—	2250

TOTAL DEPTH 4403'

PACKER DEPTH 4392'

AK-1 NO. 2162 DEPTH 4398'

1ST FLOW PRESSURE		INITIAL CIP		2ND FLOW PRESSURE		FINAL CIP	
	45-		52		83		95-
	45-		78		83		130
	47		346		87		562
	52		952		95-		908
			1038				1021
			1116				1176
			1159				119K
			1202				1211
			1228				1216
			1251				1220
15 MINUTE INTERVAL		5 MINUTE INTERVAL		15 MINUTE INTERVAL		5 MINUTE INTERVAL	

REMARKS _____

SPECIAL PRESSURE DATA

THUNDERBIRD DRLG., INC.
TESTING DIVISION
 Box 18407
WICHITA, KANSAS

Company Thunderbird Drilling, Inc.

Lease and Well No. Steinert No. 1

County Ness State Kansas Date 8-14-77

Formation Test No. 4 Total Depth 4403' Elev. _____

Interval Tested 4393' To 4403' Anchor Length 10'

Size Hole 7 7/8 Size Drill Pipe 4 1/2 XH FH Size Packer 6 3/4"

Mud Weight 9.4 Viscosity 44 Water Loss 12. c.c. Bottom Hole Temp. 116 ° F

Chokes: Top 1/2" Bottom 1/2" Ticket No. 817

RECOVERY

Blow: Weak blow thru-out test.

Recovery: 60' of gas
 30' of clean slightly gassy oil
 120' of muddy oil
 (35 gravity corrected)

Lease and Well No. Steinert No. 1 Sec 31 Twn 19-S Rg 22-W

NE SW

Formation Test No. 4

Tool Open: 1st Flow hr. 45 mins: Shut-in Initial hr. 45 min: 2nd Flow hr. 45 min: Shut-in Final hr. 45 min.

	Field Reading	Corrected Reading
(A) Initial Hydrostatic Pressure	<u>2259</u>	<u>2259</u>
(B) Initial 1st Flow Pressure	<u>43</u>	<u>43</u>
(C) Final 1st Flow Pressure	<u>52</u>	<u>52</u>
(D) Initial Shut-in Pressure	<u>1254</u>	<u>1251</u>
(E) Initial 2nd Flow Pressure	<u>69</u>	<u>83</u>
(F) Final 2nd Flow Pressure	<u>87</u>	<u>95</u>
(G) Final Shut-in Pressure	<u>1211</u>	<u>1220</u>
(H) Final Hydrostatic Pressure	<u>2259</u>	<u>2250</u>

Ticket # 87

R-2162

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RT-819

