ORIGINAL

SIDE ONE

STATE CORPORATION COMMISSION OF KANSAS
OIL & GAS CONSERVATION DIVISION
WELL COMPLETION FORM
ACO-1 WELL HISTORY
DESCRIPTION OF WELL AND LEASE

Operator: License # 03613

Name: Hallwood Petroleum, Inc.

Address 4582 S. Ulster St. Pkwy, #1700

P.O. Box 378111

City/State/Zip Denver, CO 80237

Purchaser: Koch Oil Company

Operator Contact Person: George Hutton

Phone (316) 792-2756

Contractor: Name: Duke Drilling Company

License: 5929

Wellsite Geologist: Jim Musgrove

Designate Type of Completion
X New Well ____ Re-Entry ____ Workover

X Oil ____ SWD ____ Temp. Abd.
____ Gas ____ Inj ____ Delayed Comp.
____ Dry ____ Other (Core, Water Supply, etc.)

If OWWO: old well info as follows:
Operator:

Well Name:

Comp. Date ____ Old Total Depth ____

Drilling Method:
X Mud Rotary ____ Air Rotary ____ Cable

8/24/90 Spud Date | 8/31/90 Date Reached TD | 10/4/90 Completion Date

API NO. 15- 185-22,709-00-00

County Stafford

SE NW NE Sec. 31 Twp. 22 Rge. 11 X East West

4290 Ft. North from Southeast Corner of Section

1650 Ft. West from Southeast Corner of Section
(NOTE: Locate well in section plat below.)

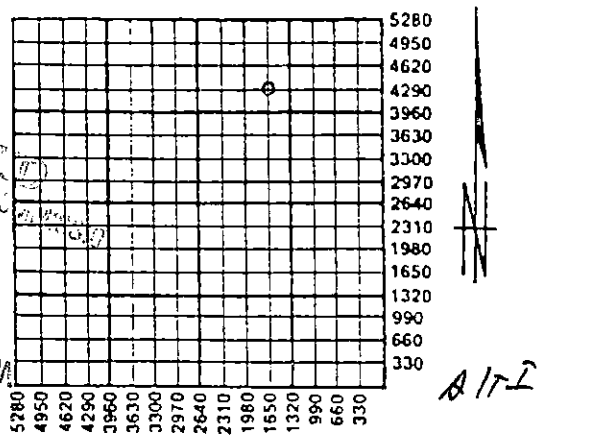
Lease Name Heyen 'B' Well # 12

Field Name Richardson

Producing Formation Arbuckle

Elevation: Ground 1815 KB 1820

Total Depth 3640 PBTD 3615



RECEIVED
KANSAS CORPORATION COMMISSION
FEB 14 1992
CONSERVATION DIVISION
WICHITA, KS

Amount of Surface Pipe Set and Cemented at 269 Feet

Multiple Stage Cementing Collar Used? ____ Yes X No

If yes, show depth set ____ Feet

If Alternate II completion, cement circulated from ____

feet depth to ____ w/ ____ sx cmt.

INSTRUCTIONS: This form shall be completed in triplicate and filed with the Kansas Corporation Commission, 200 Colorado Derby Building, Wichita, Kansas 67202, within 120 days of the spud date of any well. Rule 82-3-130, 82-3-107 and 82-3-106 apply. Information on side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form. See rule 82-3-107 for confidentiality in excess of 12 months. One copy of all wireline logs and drillers time log shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells. Any recompletion, workover or conversion of a well requires filing of ACO-2 within 120 days from commencement date of such work.

All requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature Marvin Ball

Title ____ Date 2/12/92

Subscribed and sworn to before me this 12th day of February 19 92.

Notary Public Arlene Sams

Date Commission Expires May 21, 1994

K.C.C. OFFICE USE ONLY
F ____ Letter of Confidentiality Attached
C ✓ Wireline Log Received
C ____ Drillers Timelog Received

Distribution
____ KCC ____ SWD/Rep ____ NGPA
____ KGS ____ Plug ____ Other (Specify)

Form ACO-1 (7-89)

SIDE TWO

Operator Name Hallwood Petroleum, Inc. Lease Name Heyen 'B' Well # 12

Sec. 31 Twp. 22S Rge. 11 ☐ East ☒ West County Stafford

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all drill stem tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface during test. Attach extra sheet if more space is needed. Attach copy of log.

Drill Stem Tests Taken (Attach Additional Sheets.) ☒ Yes ☐ No

Samples Sent to Geological Survey ☐ Yes ☒ No

Cores Taken ☐ Yes ☒ No

Electric Log Run (Submit Copy.) ☒ Yes ☐ No

Formation Description

☒ Log ☐ Sample

Name	Top	Bottom
Severey	2720'	(-900)
Severey Sand	2749'	(-929')
Topeka	2781'	(-961')
Heebner	3063'	(-1243')
Lansing	3231'	(-1411')
Base Kansas City	3476'	(-1656')
Arbuckle	3536'	(-1716')

CASING RECORD ☐ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs./Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percer Additives
Surface	12 1/4"	8 5/8"	24#	269'	60/40 poz	225	see attached
Production	7 7/8"	5 1/2"	14#	3645'	common	175	

PERFORATION RECORD

Shots Per Foot	Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
2	3611-13'	3559-61 acidized w/100 gals	
2	3573-76'	15% reg. acid squeeze w/50 sks	
2	3559-61'	60/40 poz, 10 sks in formation	
2	3550-55'		
	3583-86'	3550-55 acidized w/100 gals 15% reg.	
	3594-97'	squeeze w/50 sks 50/50 poz,	
	3603-07'	15 sks in formation	

TUBING RECORD	Size	Set At	Packer At	Liner Run
	2 7/8"	3591'	3590'	☐ Yes ☒ No

Date of First Production	Producing Method				
10/5/90	☐ Flowing	☒ Pumping	☐ Gas Lift	☐ Other (Explain)	

Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Water	Bbls.	Gas-Oil Ratio	Gravity
	5.4		0		715		0	40

Disposition of Gas: ☐ Vented ☐ Sold ☐ Used on Lease (If vented, submit ACO-18.)

METHOD OF COMPLETION ☐ Open Hole ☒ Perforation ☐ Dually Completed ☐ Commingled ☐ Other (Specify)

Production Interval

ORIGINAL

HALLWOOD PETROLEUM, INC.

HEYEN 'B' #12

Sec. 31-T22S-R11W
API #185-22,709

Surface:
125 SX 60/40 poz 3% cc, 2% gel. Tailed w/100 sx 60/40 poz 3% cc nogel.

Production:
75 sx common, 5% EA2, 10% salt, .75% Halid 322. Tailed w/100 sx common w/5% EA2, 10% salt .75% Halid 322, 1/4# sk Flocele, 5#/sk gilsonite.

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

ORIGINAL

Drill-Stem Test Data

Well Name & No: HEYEN "B" #12 Test No. 1 Date 8/27/90

Company HALLWOOD PETROLEUM INC Zone Tested LANSING-KS CITY

Address P.O. BOX 378111 DENVER CO 80237 Elevation 1822 KB

Co. Rep./Geo. MR JIM MUSGROVE Cont. DUKE #1 Est. Ft. of Pay 0

Location: Sec. 31 Twp. 32S Rge. 11W Co. STAFFORD State KANSAS

Interval Tested 3235-3290 Drill Pipe Size 4.5" FH

Anchor Length 55 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3230 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3235 Wt. Pipe I.D. — 2.7 Ft. Run 909

Total Depth 3290 Drill Collar — 2.25 Ft. Run 0

Mud Wt. 9.3 lb/gal. Viscosity 40 Filtrate 10.4

Tool Open @ 10:54 PM Initial Blow WEAK 1/4" BLOW DIED IN 10 MINUTES

Final Blow NO BLOW-FLUSHED TOOL-NO BLOW AFTER SURGE

Recovery — Total Feet 5 Flush Tool? 2nd OPEN

Rec. 5 Feet of DRILLING MUD

Rec. 0 Feet of

Rec. 0 Feet of

Rec. 0 Feet of

Rec. 0 Feet of

BHT 88 °F Gravity _____ °API @ 0 °F Corrected Gravity 0 °API

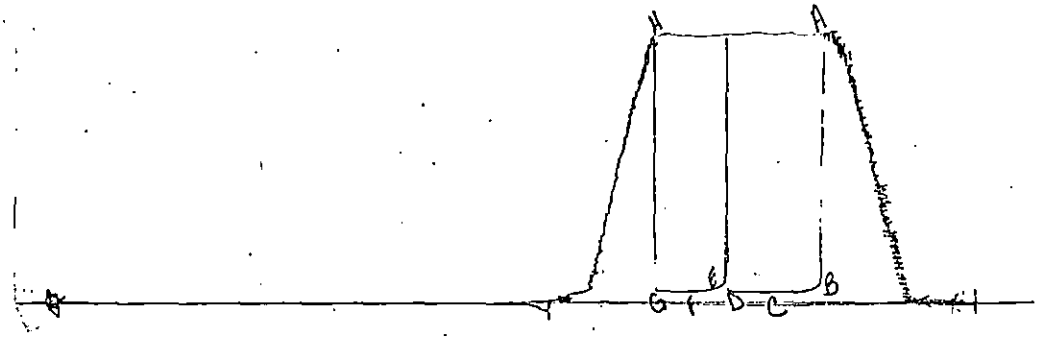
RW .9 @ 85 °F Chlorides 5500 ppm Recovery Chlorides 5600 ppm System

(A) Initial Hydrostatic Mud	1677.4 PSI	AK1 Recorder No.	13615	Range	4575
(B) First Initial Flow Pressure	61.2 PSI	@ (depth)	3289	w/Clock No.	27567
(C) First Final Flow Pressure	61.2 PSI	AK1 Recorder No.	10248	Range	4400
(D) Initial Shut-In Pressure	74.5 PSI	@ (depth)	3269	w/Clock No.	27501
(E) Second Initial Flow Pressure	61.2 PSI	AK1 Recorder No.	0	Range	0
(F) Second Final Flow Pressure	61.2 PSI	@ (depth)	0	w/Clock No.	0
(G) Final Shut-In Pressure	74.5 PSI	Initial Opening	30		
(H) Final Hydrostatic Mud	1599.8 PSI	Initial Shut-In	30		
		Final Flow	30		
		Final Shut-In	30		

Our Representative MR PAUL SIMPSON TOTAL PRICE $ 450

Printcraft Printers - Hays, KS

DST# 1 RECORDER# 13615



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1671	1677.4	PSI
(B) First Initial Flow Pressure	56	61.2	PSI
(C) First Final Flow Pressure	56	61.2	PSI
(D) Initial Closed-In Pressure	67	74.5	PSI
(E) Second Initial Flow Pressure	56	61.2	PSI
(F) Second Final Flow Pressure	56	61.2	PSI
(G) Final Closed-In Pressure	67	74.5	PSI
(H) Final Hydrostatic Mud	1594	1599.8	PSI

TRILOBITE TESTING COMPANY

ORIGINAL

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 2917 Date 8/27/90

Company Name HALLWOOD PETROLEUM INC

Lease HEYEN "B" #12 Test No. 1

County STAFFORD Sec. 31 Twp. 32S Rng. 11W

SAMPLER RECOVERY

Gas 0 CU.FT. 0 ML

Oil 0 ML

Mud 4000 ML

Water 0 ML

Other 0 ML

Pressure 10 PSI

Total 4000 ML

PIT MUD ANALYSIS

Chlorides 5600 ppm.

Resistivity .9 ohms @ 85 F

Viscosity 40

Mud Weight 9.3

Filtrate 10.4

Other N

SAMPLER ANALYSIS

Resistivity .9 ohms @ 85 F

Chlorides 5600 ppm.

Gravity 0 corrected @ 60 F

PIPE RECOVERY

TOP

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

MIDDLE

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

BOTTOM

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

No 2917

Well Name & No. Heyen "B" #12 Test No. 1 Date 8/27/90

Company Hallwood Petroleum Inc Zone Tested LKC

Address PO Box 37811 Denver Colo 80237 Elevation 1822 KB

Co. Rep. / Geo. Jim Musgrove Cont. Duke #1 Est. Ft. of Pay

Location: Sec. 31 Twp. 32s Rge. 11w Co. Stafford State Ks

No. of Copies Reg Distribution Sheet ___ Yes X No Turnkey ___ Yes X No

Interval Tested 3235-3290 Drill Pipe Size 4½ FH

Anchor Length 55 Top Choke — 1" ___ Bottom Choke — ¾" ___

Top Packer Depth 3230 Hole Size — 7⅞" ___ Rubber Size — 6¾" ___

Bottom Packer Depth 3235 Wt. Pipe I.D. — 2.7 Ft. Run 909

Total Depth 3290 Drill Collar — 2.25 Ft. Run ___

Mud Wt. 9.3 lb/gal. Viscosity 40 Filtrate 10.4

Tool Open @ 10:54 PM Initial Blow Weak ½" blow died in 10 Minutes

Final Blow no blow - flush tool - no blow after surge

Recovery — Total Feet 5 Flush Tool? 2nd open +

Rec. 5 Feet of Drilling mud

Rec. ___ Feet of ___

Rec. ___ Feet of ___

Rec. ___ Feet of ___

Rec. ___ Feet of ___

BHT 88 °F Gravity ___ °API @ ___ °F Corrected Gravity ___ °API

RW .19 @ 85 °F Chlorides 5500 ppm Recovery Chlorides 5600 ppm System

(A) Initial Hydrostatic Mud	1671 PSI	AK1 Recorder No	3615	Range	4575
(B) First Initial Flow Pressure	56 PSI	@ (depth)	3289	w/Clock No.	27567
(C) First Final Flow Pressure	56 PSI	AK1 Recorder No.	10248	Range	4400
(D) Initial Shut-in Pressure	67 PSI	@ (depth)	3269	w/Clock No.	27501
(E) Second Initial Flow Pressure	56 PSI	AK1 Recorder No.		Range	
(F) Second Final Flow Pressure	56 PSI	@ (depth)		w/Clock No.	
(G) Final Shut-in Pressure	67 PSI	Initial Opening	30	Test	400
(H) Final Hydrostatic Mud	1594 PSI	Initial Shut-in	30	Jars	
		Final Flow	30	Safety Joint	
		Final Shut-in	30	Straddle	
				Circ. Sub	
				Sampler	50
				Extra Packer	
				Other	
				TOTAL PRICE $	450

Approved By Jim Musgrove

Our Representative Dewey Simpson

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY ORIGINAL

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name & No. HEYEN "B" #12 Test No. 2 Date 8/28/90

Company HALLWOOD PETROLEUM INC Zone Tested LANSING-KS CITY

Address P.O. BOX 378111 DENVER CO 80237 Elevation 1822 KB

Co. Rep./Geo. MR JIM MUSGROVE Cont. DUKE #1 Est. Ft. of Pay 0

Location: Sec. 31 Twp. 32S Rge. 11W Co. STAFFORD State KANSAS

Interval Tested 3289-3315 Drill Pipe Size 4.5" FH

Anchor Length 26 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3284 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3289 Wt. Pipe I.D. — 2.7 Ft. Run 909

Total Depth 3315 Drill Collar — 2.25 Ft. Run 0

Mud Wt. 9.2 lb / gal. Viscosity 49 Filtrate 11.2

Tool Open @ 9:47 AM Initial Blow 3/4" BLOW BUILDING TO 11" BLOW

Final Blow VERY WEAK SURFACE BLOW BUILDING TO 6.5"

Recovery — Total Feet 90 Flush Tool? NO

Rec. 200 Feet of GAS IN PIPE

Rec. 30 Feet of MUD

Rec. 60 Feet of WATERY MUD

Rec. 0 Feet of

Rec. 0 Feet of

BHT 0 °F Gravity _____ °API @ 0 °F Corrected Gravity 0 °API

RW .16 @ 96.6°F Chlorides _____ ppm Recovery Chlorides 8000 ppm System

(A) Initial Hydrostatic Mud	1710.5	PSI	AK1 Recorder No.	10248	Range	4400
(B) First Initial Flow Pressure	23.6	PSI	@ (depth)	3293	w/Clock No.	27567
(C) First Final Flow Pressure	45.9	PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	71.4	PSI	@ (depth)	3314	w/Clock No.	14389
(E) Second Initial Flow Pressure	60.3	PSI	AK1 Recorder No.	0	Range	0
(F) Second Final Flow Pressure	74.5	PSI	@ (depth)	0	w/Clock No.	0
(G) Final Shut-In Pressure	115.9	PSI	Initial Opening	30		
(H) Final Hydrostatic Mud	1680.9	PSI	Initial Shut-In	45		
			Final Flow	45		
			Final Shut-In	60		

MR PAUL SIMPSON

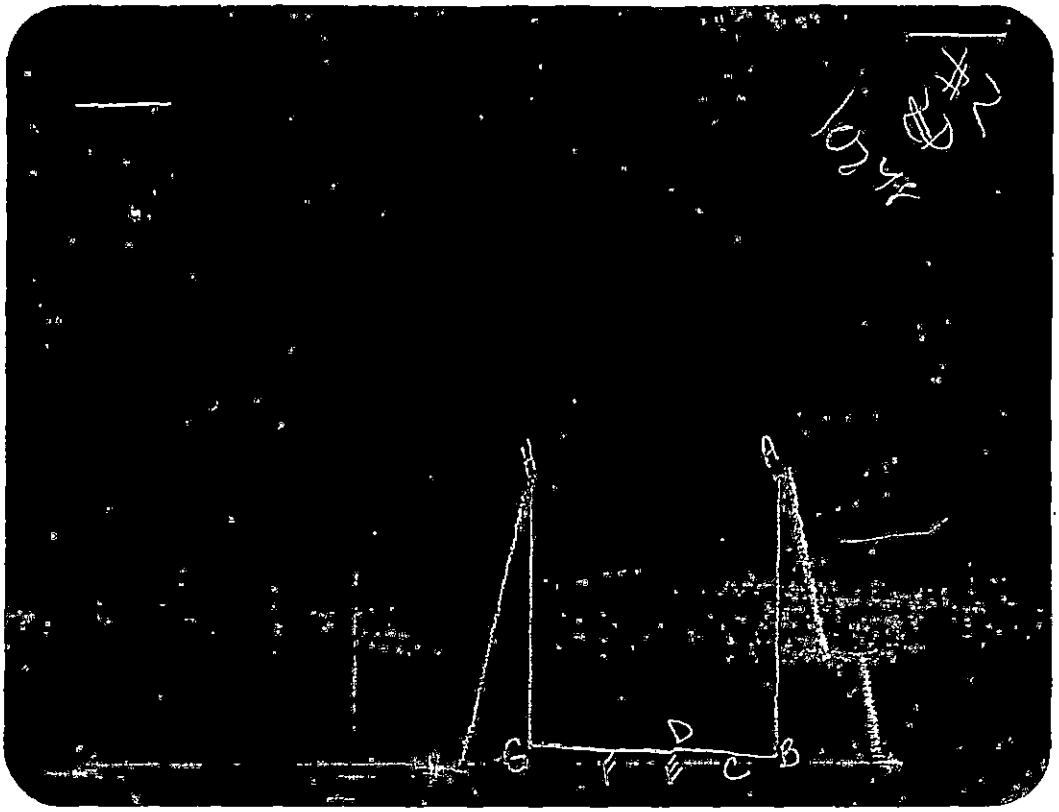
Our Representative _____

500

TOTAL PRICE $ _____

Printcraft Printers - Hays, KS

DST# . RECORDER# 12248



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1705	1710.5	PSI
(B) First Initial Flow Pressure	22	23.6	PSI
(C) First Final Flow Pressure	45	45.9	PSI
(D) Initial Closed-In Pressure	67	71.4	PSI
(E) Second Initial Flow Pressure	56	60.3	PSI
(F) Second Final Flow Pressure	67	74.5	PSI
(G) Final Closed-In Pressure	112	115.9	PSI
(H) Final Hydrostatic Mud	1682	1660.9	PSI

TRILOBITE TESTING COMPANY ORIGINAL

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 2918 Date 9/28/90

Company Name HALLWOOD PETROLEUM INC

Lease HEYEN "B" #12 Test No. 2

County STAFFORD Sec. 31 Twp. 32S Rng. 11W

SAMPLER RECOVERY

Gas	500	ML
Oil	0	ML
Mud	0	ML
Water	3500	ML
Other	0	ML
Pressure	50	PSI
Total	4000	ML

PIT MUD ANALYSIS

Chlorides	8000	ppm.
Resistivity	0 ohms @	0 F
Viscosity	49	
Mud Weight	9.2	
Filtrate	11.2	
Other	N	

SAMPLER ANALYSIS

Resistivity .14 ohms @ 97.1 F

Chlorides 36000 ppm.

Gravity 0 corrected @ 60 F

PIPE RECOVERY

TOP

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

MIDDLE

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

BOTTOM

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

No. 2918

Well Name & No. Heyen 'B' #12 Test No. 2 Date 8/28/90

Company Hallwood Petroleum Inc. Zone Tested LKC 'F'

Address _____ Elevation _____

Co. Rep. / Geo. Jim Musgrave Cont. Duke #1 Est. Ft. of Pay _____

Location: Sec. 31 Twp. 32S Rge. 11W Co. Stafford State Ks

No. of Copies _____ Distribution Sheet _____ Yes _____ No Turnkey _____ Yes _____ No

Interval Tested 3289 - 3315 Drill Pipe Size 4½ FH

Anchor Length 26 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3284 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3289 Wt. Pipe I.D. — 2.7 Ft. Run 909

Total Depth 3315 Drill Collar — 2.25 Ft. Run _____

Mud Wt. 9.2 lb/gal. Viscosity 49 Filtrate 11.2

Tool Open @ 9:47 AM Initial Blow 3/4" blow building to 11" blow

Final Blow Very weak surface blow building to 6½"

Recovery — Total Feet 90 Flush Tool? _____

Rec. 2.00 Feet of GIP

Rec. 30 Feet of mud

Rec. 60 Feet of watery mud

Rec. _____ Feet of _____

Rec. _____ Feet of _____

BHT 97 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW .16 @ 96 °F Chlorides _____ ppm Recovery Chlorides 8000 ppm System

(A) Initial Hydrostatic Mud	1705 PSI	AK1 Recorder No.	10248	Range	4400
(B) First Initial Flow Pressure	22 PSI	@ (depth)	3293	w/Clock No.	27567
(C) First Final Flow Pressure	45 PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	67 PSI	@ (depth)	3314	w/Clock No.	14389
(E) Second Initial Flow Pressure	56 PSI	AK1 Recorder No.		Range	
(F) Second Final Flow Pressure	67 PSI	@ (depth)		w/Clock No.	
(G) Final Shut-In Pressure	112 PSI	Initial Opening	30	Test	400
(H) Final Hydrostatic Mud	1682 PSI	Initial Shut-In	45	Jars	X
		Final Flow	45	Safety Joint	X
		Final Shut-In	60	Straddle	
				Circ. Sub	
				Sampler	100
				Extra Packer	
				Other	
				TOTAL PRICE $	500

Approved By Jim Musgrave

Our Representative _____

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

ORIGINAL

Drill-Stem Test Data

Well Name & No. HEYEN "B" #12 Test No. 3 Date 8/29/90

Company HALLWOOD PETROLEUM INC Zone Tested LANSING-KS CITY

Address P.O. BOX 378111 DENVER CO 80237 Elevation 1822 KB

Co. Rep./Geo. MR JIM MUSGROVE Cont. DUKE #1 Est. Ft. of Pay 0

Location: Sec. 31 Twp. 32S Rge. 11W Co. STAFFORD State KANSAS

Interval Tested 3370-3411 Drill Pipe Size 4.5" FH

Anchor Length 41 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3365 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3370 Wt. Pipe I.D. — 2.7 Ft. Run 0

Total Depth 3411 Drill Collar — 2.25 Ft. Run 0

Mud Wt. 9.4 lb/gal. Viscosity 46 Filtrate 12.0

Tool Open @ 2:45 AM Initial Blow WEAK 1/4" BLOW BUILDING TO 4.5"

Final Blow 1 1/2" BLOW BUILDING TO 8"

Recovery — Total Feet 30 Flush Tool? NO

Rec. 240 Feet of GAS IN PIPE

Rec. 30 Feet of SLIGHTLY WATERY MUD

Rec. 0 Feet of _____

Rec. 0 Feet of _____

Rec. 0 Feet of _____

BHT 101 °F Gravity _____ °API @ 0 °F Corrected Gravity 0 °API

RW .25 @ 75.2 °F Chlorides 26000 ppm Recovery Chlorides 8000 ppm System

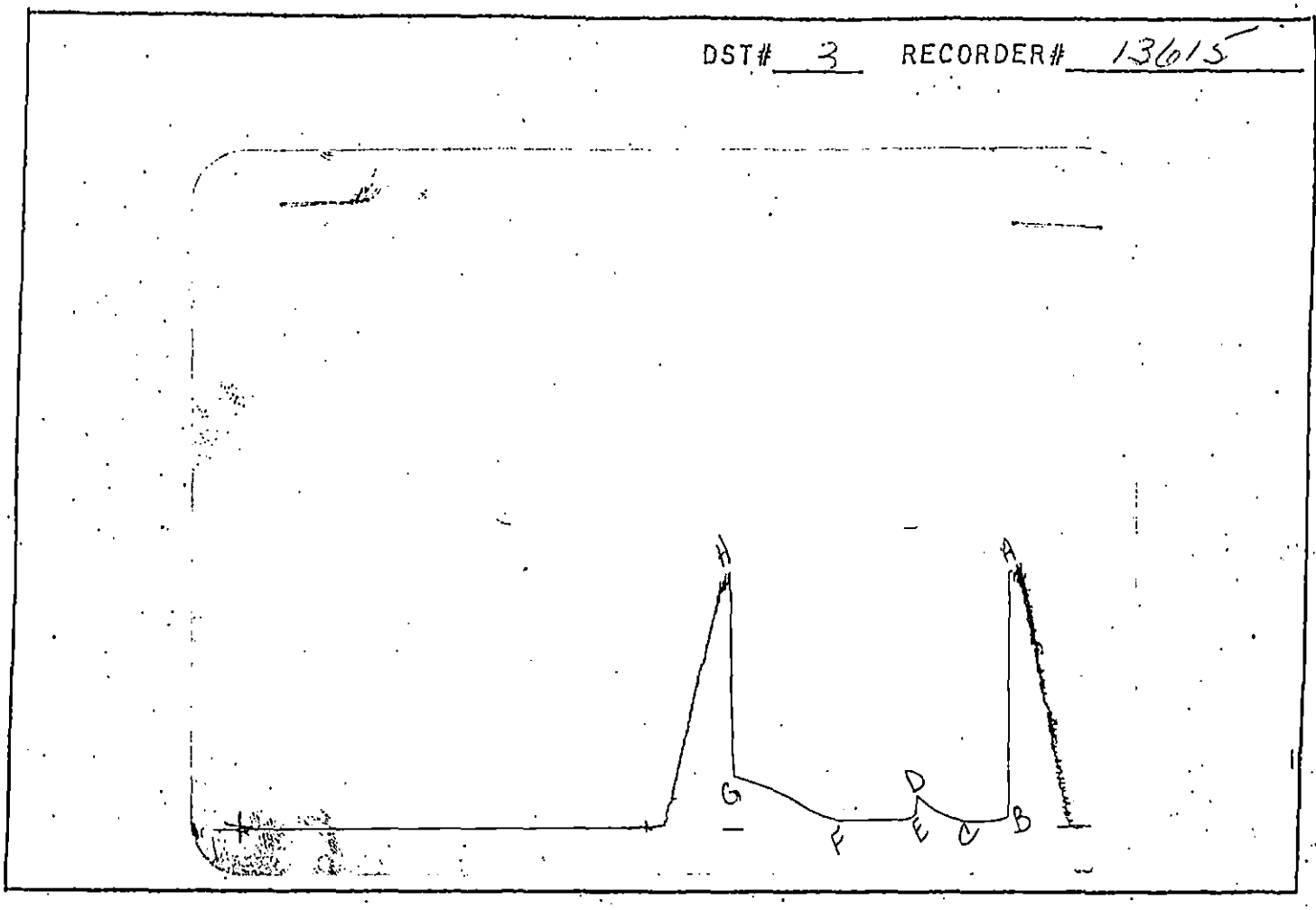
(A) Initial Hydrostatic Mud	1675.4 PSI	Ak1 Recorder No.	10248	Range	4000
(B) First Initial Flow Pressure	23.5 PSI	@ (depth)	3374	w/Clock No.	14389
(C) First Final Flow Pressure	23.5 PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	241.5 PSI	@ (depth)	3410	w/Clock No.	27567
(E) Second Initial Flow Pressure	33.9 PSI	AK1 Recorder No.	0	Range	0
(F) Second Final Flow Pressure	33.9 PSI	@ (depth)	0	w/Clock No.	0
(G) Final Shut-In Pressure	377.8 PSI	Initial Opening	30		
(H) Final Hydrostatic Mud	1631.2 PSI	Initial Shut-In	45		
		Final Flow	60		
		Final Shut-In	90		

Our Representative MR PAUL SIMPSON

TOTAL PRICE $ 500

Printcraft Printers - Hays, KS

DST# 3 RECORDER# 13615



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1671	1675.4	PSI
(B) First Initial Flow Pressure	22	23.5	PSI
(C) First Final Flow Pressure	22	23.5	PSI
(D) Initial Closed-In Pressure	236	241.5	PSI
(E) Second Initial Flow Pressure	34	33.9	PSI
(F) Second Final Flow Pressure	34	33.9	PSI
(G) Final Closed-In Pressure	372	377.8	PSI
(H) Final Hydrostatic Mud	1627	1631.2	PSI

TRILOBITE TESTING COMPANY ORIGINAL

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 2919 Date 8/29/90

Company Name HALLWOOD PETROLEUM INC

Lease HEYEN "B" #12 Test No. 3

County STAFFORD Sec. 31 Twp. 32S Rng. 11W

SAMPLER RECOVERY

Gas 0 CU.FT. 0 ML

Oil 0 ML

Mud 3500 ML

Water 500 ML

Other 0 ML

Pressure 20 PSI

Total 4000 ML

PIT MUD ANALYSIS

Chlorides 8000 ppm.

Resistivity .7 ohms @ 75 F

Viscosity 46

Mud Weight 9.4

Filtrate 12.0

Other

SAMPLER ANALYSIS

Resistivity .253 ohms @ 75.2 F

Chlorides 26000 ppm.

Gravity 0 corrected @ 60 F

PIPE RECOVERY

TOP

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

MIDDLE

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

BOTTOM

Resistivity 0 ohms @ 0 F

Chlorides 0 ppm.

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

No. 2919

Well Name & No. Heyen 'B' #12 Test No. 3 Date 8/29/90

Company Hallwood Petroleum Zone Tested LKC 'H-I-J'

Address _____ Elevation _____

Co. Rep. / Geo. Jim Musgrove Cont. Duke #1 Est. Ft. of Pay _____

Location: Sec. 31 Twp. 32s Rge. 11w Co. Stafford State KS

No. of Copies _____ Distribution Sheet _____ Yes _____ No Turnkey _____ Yes _____ No

Interval Tested 3370-3411 Drill Pipe Size 4½ FH

Anchor Length 41 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3365 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3370 Wt. Pipe I.D. — 2.7 Ft. Run _____

Total Depth 3411 Drill Collar — 2.25 Ft. Run _____

Mud Wt. 9.4 lb / gal. Viscosity 46 Filtrate 12

Tool Open @ 2:45 AM Initial Blow Weak ¼" blow building to 4½"

Final Blow 1½" blow building to 8"

Recovery — Total Feet 30 Flush Tool? _____

Rec. 240 Feet of GIP

Rec. 30 Feet of sl watery mud

Rec. _____ Feet of _____

Rec. _____ Feet of _____

Rec. _____ Feet of _____

BHT 101 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW .25 @ 75.2 °F Chlorides 26,000 ppm Recovery Chlorides 5000 ppm System

(A) Initial Hydrostatic Mud	1671 PSI	AK1 Recorder No.	10248	Range	4000
(B) First Initial Flow Pressure	22 PSI	@ (depth)	3374	w/Clock No.	14389
(C) First Final Flow Pressure	22 PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	236 PSI	@ (depth)	3410	w/Clock No.	27567
(E) Second Initial Flow Pressure	34 PSI	AK1 Recorder No.		Range	
(F) Second Final Flow Pressure	34 PSI	@ (depth)		w/Clock No.	
(G) Final Shut-In Pressure	372 PSI	Initial Opening	30	Test	400
(H) Final Hydrostatic Mud	1627 PSI	Initial Shut-In	45	Jars	N
		Final Flow	60	Safety Joint	X
		Final Shut-In	90	Straddle	
				Circ. Sub	
				Sampler	1.00
				Extra Packer	
				Other	
				TOTAL PRICE $	500

Approved By Jim Musgrove

Our Representative Carl Stephenson

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

ORIGINAL

Drill-Stem Test Data

Well Name & No. HEYEN "B" #12 Test No. 4 Date 8/29/90

Company HALLWOOD PETROLEUM INC Zone Tested SIMPSON/ARB

Address P.O. BOX 378111 DENVER CO 80237 Elevation 1822 KB

Co. Rep./Geo. MR JIM MUSGROVE Cont. DUKE #1 Est. Ft. of Pay 0

Location: Sec. 31 Twp. 32S Rge. 11W Co. STAFFORD State KANSAS

Interval Tested 3466-3531 Drill Pipe Size 4.5" FH

Anchor Length 65 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3461 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3466 Wt. Pipe I.D. — 2.7 Ft. Run 909

Total Depth 3531 Drill Collar — 2.25 Ft. Run 0

Mud Wt. 9.3 lb/gal. Viscosity 47 Filtrate 12.0

Tool Open @ 10:30 PM Initial Blow 1" BLOW BUILDING TO BOTTOM OF BUCKET IN 28 MINUTES

Final Blow 1/2" BLOW BUILDING TO BOTTOM IN 37 MINUTES

Recovery — Total Feet 380 Flush Tool? _____

Rec. 20 Feet of MUD

Rec. 60 Feet of SLIGHTLY OIL SPECKED MUD-2% OIL/98%

Rec. 60 Feet of SLIGHTLY OIL CUT MUD-5% OIL/95%MUD

Rec. 180 Feet of SLIGHTLY MUDDY SALT WATER

Rec. 0 Feet of _____

BHT 110 °F Gravity _____ °API @ 0 °F Corrected Gravity 0 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

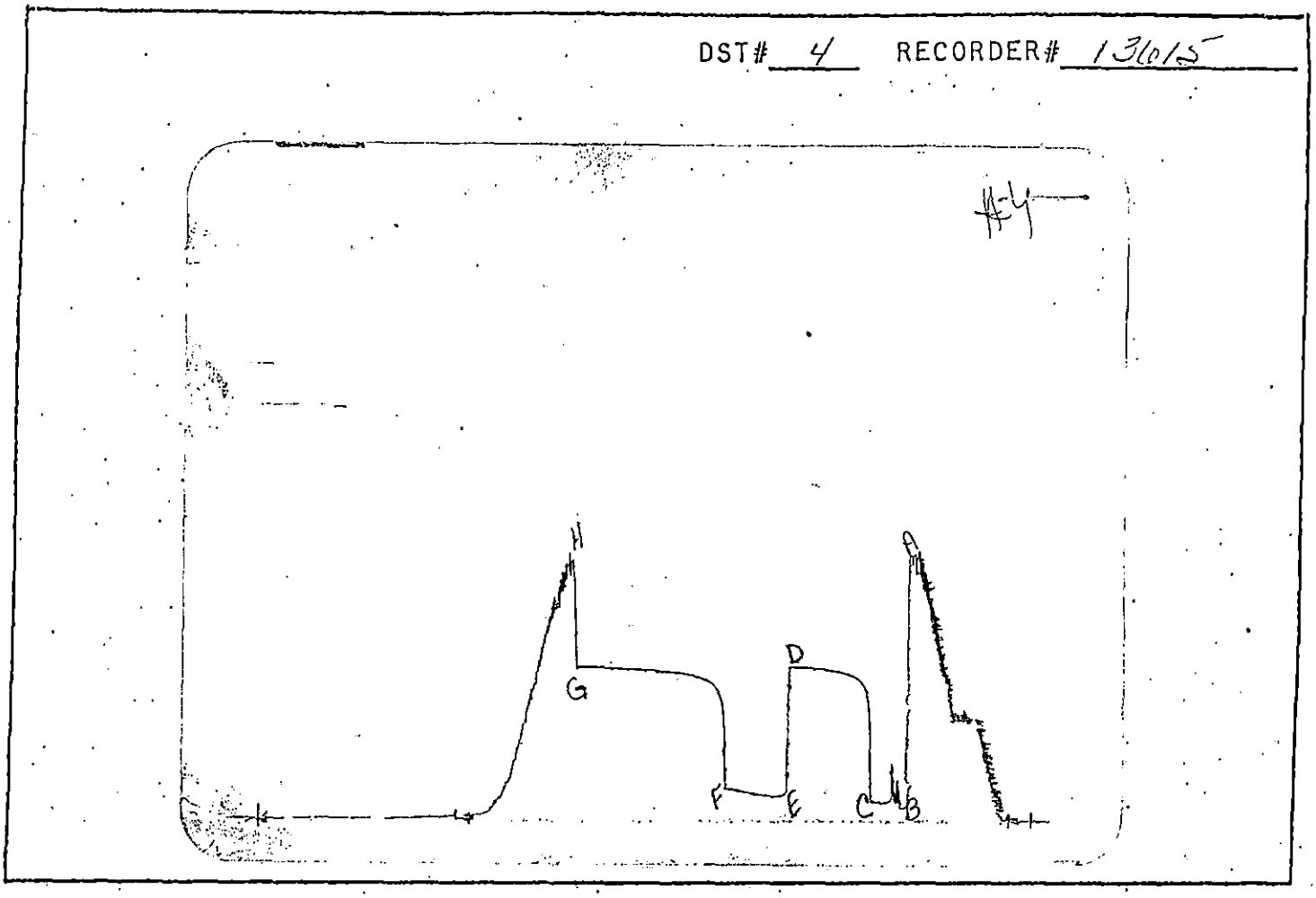
(A) Initial Hydrostatic Mud	1841.5 PSI	AK1 Recorder No.	10248	Range	4400
(B) First Initial Flow Pressure	62.3 PSI	@ (depth)	3500	w/Clock No.	14389
(C) First Final Flow Pressure	115.9 PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	1062.3 PSI	@ (depth)	3530	w/Clock No.	27567
(E) Second Initial Flow Pressure	141.8 PSI	AK1 Recorder No.	0	Range	0
(F) Second Final Flow Pressure	229.8 PSI	@ (depth)	0	w/Clock No.	0
(G) Final Shut-In Pressure	1065.4 PSI	Initial Opening	30		
(H) Final Hydrostatic Mud	1810.2 PSI	Initial Shut-In	60		
		Final Flow	60		
		Final Shut-In	120		

Our Representative MR PAUL SIMPSON

TOTAL PRICE $ 500

Printcraft Printers - Hays, KS

DST# 4 RECORDER# 13015



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1837	1841.5	PSI
(B) First Initial Flow Pressure	56	62.3	PSI
(C) First Final Flow Pressure	113	115.9	PSI
(D) Initial Closed-in Pressure	1062	1062.3	PSI
(E) Second Initial Flow Pressure	135	141.8	PSI
(F) Second Final Flow Pressure	225	229.8	PSI
(G) Final Closed-in Pressure	1062	1065.4	PSI
(H) Final Hydrostatic Mud	1806	1810.2	PSI

TRILOBITE TESTING COMPANY ORIGINAL

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 2920 Date 8/29/90

Company Name HALLWOOD PETROLEUM INC

Lease HEYEN "B" #12 Test No. 4

County STAFFORD Sec. 31 Twp. 32S Rng. 11W

SAMPLER RECOVERY

Gas 0 CU.FT. 0 ML

Oil 100 ML

Mud 400 ML

Water 3500 ML

Other 0 ML

Pressure 100 PSI

Total 4000 ML

PIT MUD ANALYSIS

Chlorides _____ ppm.

Resistivity .7 ohms @ 78 F

Viscosity 47

Mud Weight 9.3

Filtrate 12.0

Other N

SAMPLER ANALYSIS

Resistivity .4 ohms @ 72.6 F

Chlorides 16000 ppm.

Gravity 0 corrected @ 60 F

PIPE RECOVERY

TOP

Resistivity .6 ohms @ 74 F

Chlorides 9500 ppm.

MIDDLE

Resistivity .52 ohms @ 75 F

Chlorides 12000 ppm.

BOTTOM

Resistivity .483 ohms @ 74 F

Chlorides 13000 ppm.

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

№ 2920

Well Name & No. Heyen 'B' #12 Test No. 4 Date 8/29/90

Company Hallwood Petroleum Zone Tested Simpson - Arbuckle

Address _____ Elevation _____

Co. Rep. / Geo. Jim Musgrove Cont. Duke #1 Est. Ft. of Pay _____

Location: Sec. 31 Twp. 32S Rge. 11W Co. Stafford State Ks

No. of Copies _____ Distribution Sheet _____ Yes _____ No Turnkey _____ Yes _____ No

Interval Tested 3466-3531 Drill Pipe Size 4½

Anchor Length 65 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3461 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3466 Wt. Pipe I.D. — 2.7 Ft. Run 9004

Total Depth 3531 Drill Collar — 2.25 Ft. Run _____

Mud Wt. 9.3 lb / gal. Viscosity 47 Filtrate 12

Tool Open @ 10:30 PM Initial Blow 1" blow building to bottom bucket in 28 minutes

Final Blow ½" blow building to bottom in 30 minutes

Recovery — Total Feet 380 Flush Tool? _____

Rec. 20 Feet of Mud

Rec. 60 Feet of sl oil spotted mud 2% oil 98% mud

Rec. 60 Feet of SOCM 5% oil 95% mud

Rec. 60 Feet of oil spotted watery mud 2% oil 33% water 65% mud

Rec. 180 Feet of sl muddy salt water

BHT 110 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud	1837 PSI	AK1 Recorder No.	10248	Range	4400
(B) First Initial Flow Pressure	56 PSI	@ (depth)	3500	w/Clock No.	14389
(C) First Final Flow Pressure	113 PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	1062 PSI	@ (depth)	3530	w/Clock No.	27967
(E) Second Initial Flow Pressure	135 PSI	AK1 Recorder No.		Range	
(F) Second Final Flow Pressure	225 PSI	@ (depth)		w/Clock No.	
(G) Final Shut-In Pressure	1062 PSI	Initial Opening	30	Test	400
(H) Final Hydrostatic Mud	~~1838~~ 1806 PSI	Initial Shut-In	60	Jars	X
		Final Flow	60	Safety Joint	X
		Final Shut-In	120	Straddle	
				Circ. Sub	
				Sampler	100
				Extra Packer	
				Other	
				TOTAL PRICE $	500

Approved By Jim Musgrove

Our Representative Todd Simon

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

ORIGINAL

Drill-Stem Test Data

Well Name & No. HEYEN "B" #12 Test No. 5 Date 8/30/90

Company HALLWOOD PETROLEUM INC Zone Tested ARBUCKLE

Address P.O. BOX 378111 DENVER CO 80237 Elevation 1822 KB

Co. Rep./Geo. MR JIM MUSGROVE Cont. DUKE #1 Est. Ft. of Pay 0

Location: Sec. 31 Twp. 32S Rge. 11W Co. STAFFORD State KANSAS

Interval Tested 3550-3560 Drill Pipe Size 4.5" FH

Anchor Length 10 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3545 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3550 Wt. Pipe I.D. — 2.7 Ft. Run 909

Total Depth 3560 Drill Collar — 2.25 Ft. Run 0

Mud Wt. 9.5 lb/gal. Viscosity 49 Filtrate 15

Tool Open @ 12:12 PM Initial Blow STRONG BLOW BUILT TO BOTTOM OF BUCKET IN 20 SECONDS-(BLOW BACK BUILT TO 1.5")

Final Blow STRONG-TO BOTTOM OF BUCKET IN 1 MINUTE

Recovery — Total Feet 2520 (90' ft-GAS IN PIPE) Flush Tool? YES

Rec. 60 Feet of CLEAN GASSY OIL-15%GAS/85%OIL

Rec. 60 Feet of GASSY MUD CUT OIL-30%GAS/45%OIL/25%MUD

Rec. 400 Feet of OIL CUT WATER-20%GAS/20%OIL/60%WATER

Rec. 400 Feet of OIL CUT WATER-10%GAS/10%OIL/80%WATER

Rec. 1600 Feet of SLIGHTLY OIL SPECKED WATER-2%OIL/98%WATER

BHT 108 °F Gravity 43 °API @ 90 °F Corrected Gravity 40 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud	1841.2 PSI	AK1 Recorder No.	10248	Range	4400
(B) First Initial Flow Pressure	394.1 PSI	@ (depth)	3552	w/Clock No.	27501
(C) First Final Flow Pressure	1042.2 PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	1124.4 PSI	@ (depth)	3559	w/Clock No.	14389
(E) Second Initial Flow Pressure	1073.3 PSI	AK1 Recorder No.	0	Range	0
(F) Second Final Flow Pressure	1120 PSI	@ (depth)	0	w/Clock No.	0
(G) Final Shut-In Pressure	1120 PSI	Initial Opening	30		
(H) Final Hydrostatic Mud	1810.5 PSI	Initial Shut-In	30		
		Final Flow	30		
		Final Shut-In	30		

MR PAUL SIMPSON

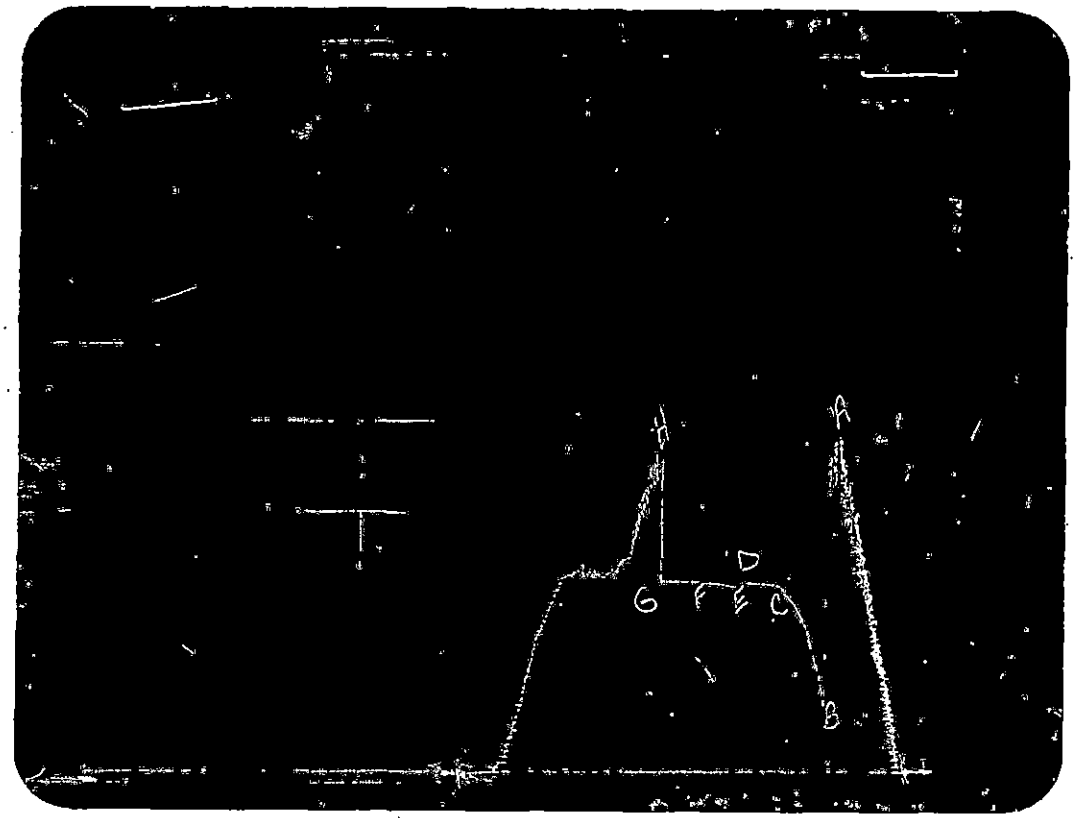
Our Representative _____

535

TOTAL PRICE $ _____

Printcraft Printers - Hays, KS

DST# 1 RECORDER# 10345



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud	1837	1841.2	PSI
(B) First Initial Flow Pressure	394	394.1	PSI
(C) First Final Flow Pressure	1049	1042.2	PSI
(D) Initial Closed-In Pressure	1106	1124.4	PSI
(E) Second Initial Flow Pressure	1073	1073.3	PSI
(F) Second Final Flow Pressure	1106	1120	PSI
(G) Final Closed-In Pressure	1117	1120	PSI
(H) Final Hydrostatic Mud	1804	1810.5	PSI

ORIGINAL

COMPUTER EVALUATION BY TRILOBITE TESTING
HALLWOOD PETROLEUM INC
REPORT FOR DST#5 FOR THE HEYEN "B" #12
31-32S-11W STAFFORD KS

****

TEST PARAMETERS

ELEVATION: 1822 KB
DATUM: -1731
TEST INTERVAL: 3550-3560

RECORDER DEPTH: 3552
BOTTOM HOLE TEMP: 108

EST. PAY: 5 FT
ZONE TESTED: ARBUCKLE

TIME INTERVALS: 30-30-30-30
VISCOSITY: .6270483 CP
HOLE SIZE: 7.875 IN

****

CALCULATIONS

CUBIC FEET OF GAS IN PIPE: 7.185545

TOTAL FEET OF RECOVERY: 2520
BARRELS IN DRILL PIPE: 22.90842
BARRELS IN WEIGHT PIPE: 6.363
GAS OIL RATIO: 0 CU.FT./BBL
BUBBLE POINT PRESSURE: ; 0
TOTAL BARRELS OF RECOVERY: 29.27142

UNCORR. INIT. PROD.: 702.5141 BBL/DAY

API GRAVITY: 40

FLUID GRADIENT: .357

CORRECTED PIPE FILLUP: 3137.255

CORR. BARRELS OF RECOVERY: 38.04516 BBL

INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE: 913.0838 BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE
91.60954

****

INITIAL SLOPE 41.93 PSI/CYCLE
INITIAL P* 1139 PSI

FINAL SLOPE 2.13 PSI/CYCLE
FINAL P* 1123 PSI

****

TRANSMISSIBILITY	69703.02 (MD.-FT./CP.)
PERMEABILITY	8741.431 (MD.)
INDICATED FLOW CAPACITY	43707.15 (MD.FT)
PRODUCTIVITY INDEX	78.76441 (BARRELS/DAY/PSI)
DAMAGE RATIO	.2577465
RADIUS OF INVESTIGATION	724.214 (FT.)
POTENTIOMETRIC SURFACE	874.2371 (FT.)
DRAWDOWN FACTOR	1.404738 (%)

CALCULATED RECOVERY ANALYSIS

DST # 5 TICKET # 2921

SAMPLE #	TOTAL FEET	GAS %	GAS FEET	OIL %	OIL FEET	WATER %	WATER FEET	MUD %	MUD FEET
1	909	0	0	2	18.18	98	890.82	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4			0		0		0		0
5			0		0		0		0
TOTAL	909	0	0	2	18.18	98	890.82	0	0

		HRS OPEN	BBL/DAY
BBL OIL=	0.12726 *	1	3.05424
BBL WATER	6.23574 *		149.657
BBL MUD=	0		

CALCULATED RECOVERY ANALYSIS

DST # 5 TICKET # 2921

SAMPLE #	TOTAL FEET	GAS %	GAS FEET	OIL %	OIL FEET	WATER %	WATER FEET	MUD %	MUD FEET
1	60	15	9	85	51	0	0	0	0
2	60	30	18	45	27	0	0	25	15
3	400	20	80	20	80	60	240	0	0
4	400	10	40	10	40	80	320	0	0
5	691	0	0	2	13.82	98	677.18	0	0
TOTAL	1611	9.12	147	13.1483	211.82	76.7957	1237.18	0.93109	15

		HRS OPEN	BBL/DAY
BBL OIL=	3.012080 *	1	72.2899
BBL WATER	17.59269 *		422.224
BBL MUD=	0.2133		

ORIGINAL

INITIAL FLOW

RECORDER # 10248
DST #5

DT(MIN)	PRESSURE	<> PRESSURE
0	394.1	394.1
3	506.6	112.5
6	613.3	106.7
9	695.5	82.20001
12	775.5	80
15	840	64.5
18	902.2	62.20001
21	937.7	35.5
24	984.4	46.70001
27	1013.3	28.89996
30	1042.2	28.89996

FINAL FLOW

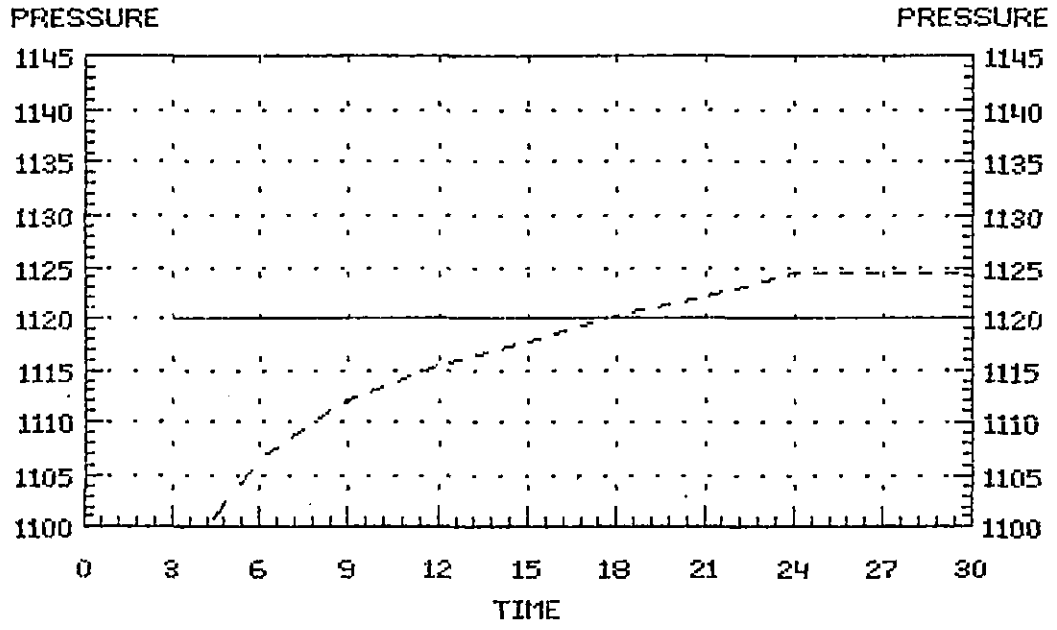
RECORDER # 10248
DST #5

DT(MIN)	PRESSURE	<> PRESSURE
0	1073.3	1073.3
3	1082.2	8.899902
6	1104.4	22.20007
9	1112.2	7.799927
12	1115.2	3
15	1120	4.800049
18	1120	0
21	1120	0
24	1120	0
27	1120	0
30	1120	0

DELTA T DELTA P

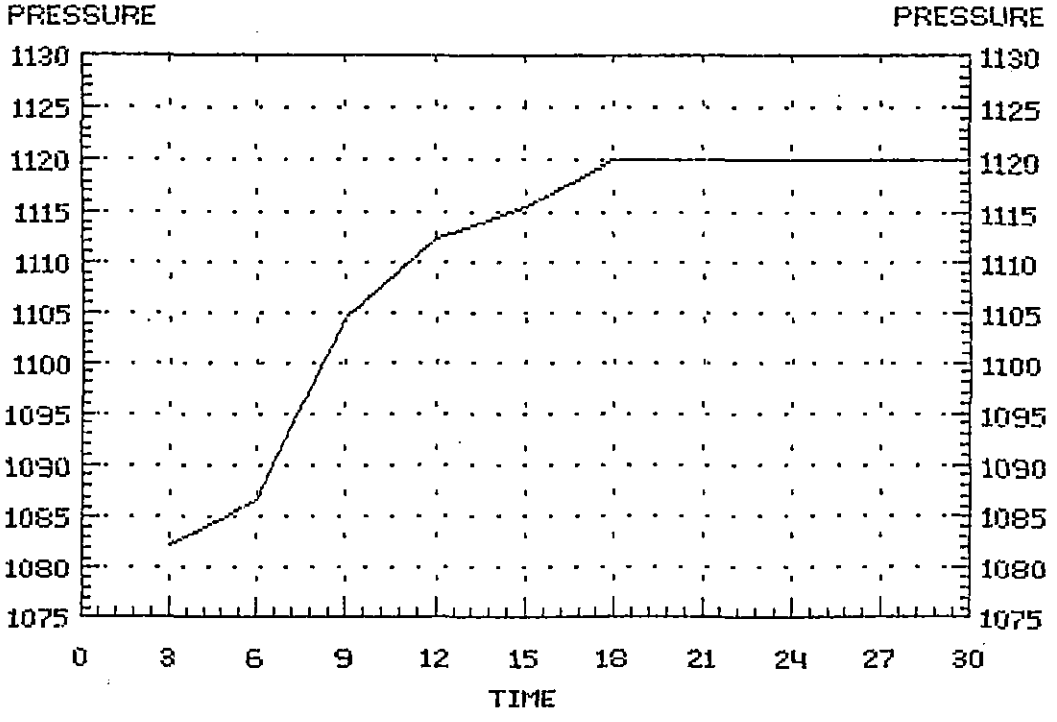
DST #5 INITIAL & FINAL SHUTIN
RECORDER # 10248

FINAL ——————— INITIAL - - - - - - -



DELTA T DELTA P

DST #5 FINAL FLOW
RECORDER # 10248



INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE 91.60954 BBL/DAY

ORIGINAL

HEYEN "B"#12DST #5
INITIAL SHUTIN

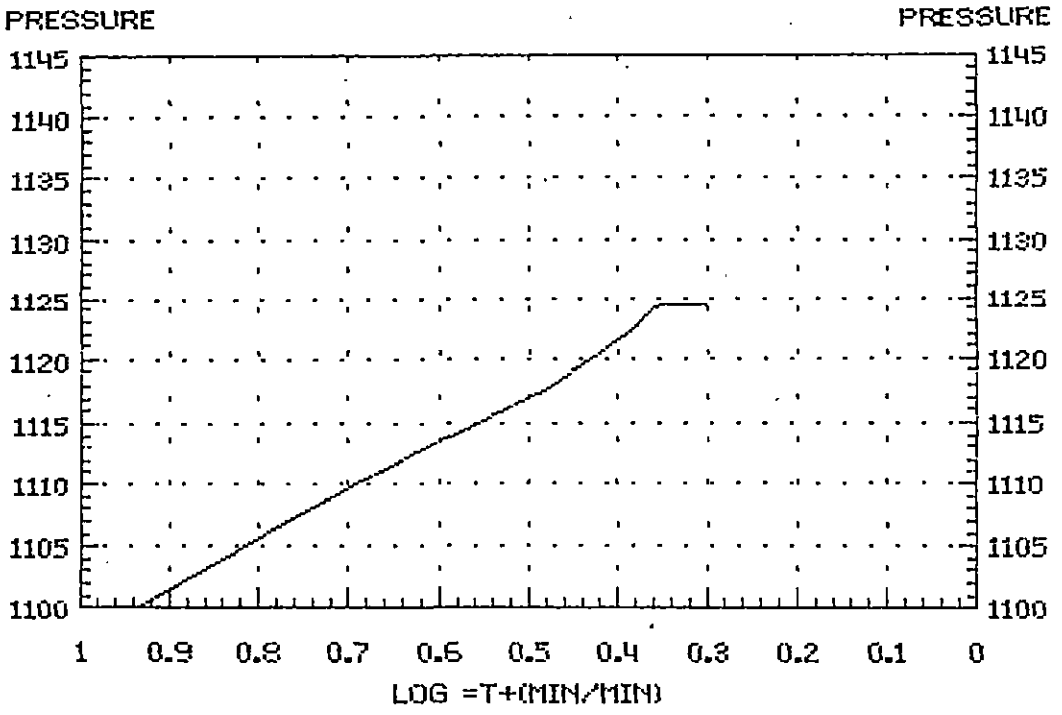
30 INITAL FLOW TIME

Slope	-41.93 psi/cycle
P *	1,139 psi

	TIME(MIN)	Pws (psi)	Horn T	Log Horn T	<> PRESSURE
X	3	1095.5	11	1.041	1095.5
	6	1106.6	6	0.778	11.1
	9	1112.2	4	0.637	5.6
	12	1115.5	4	0.544	3.3
	15	1117.7	3	0.477	2.2
	18	1120.2	3	0.426	2.5
	21	1122.2	2	0.385	2.0
X	24	1124.4	2	0.352	2.2
	27	1124.4	2	0.325	0.0
	30	1124.4	2	0.301	0.0

HORNER PLOT

DST #5 INITIAL SHUTIN
RECORDER # 10248



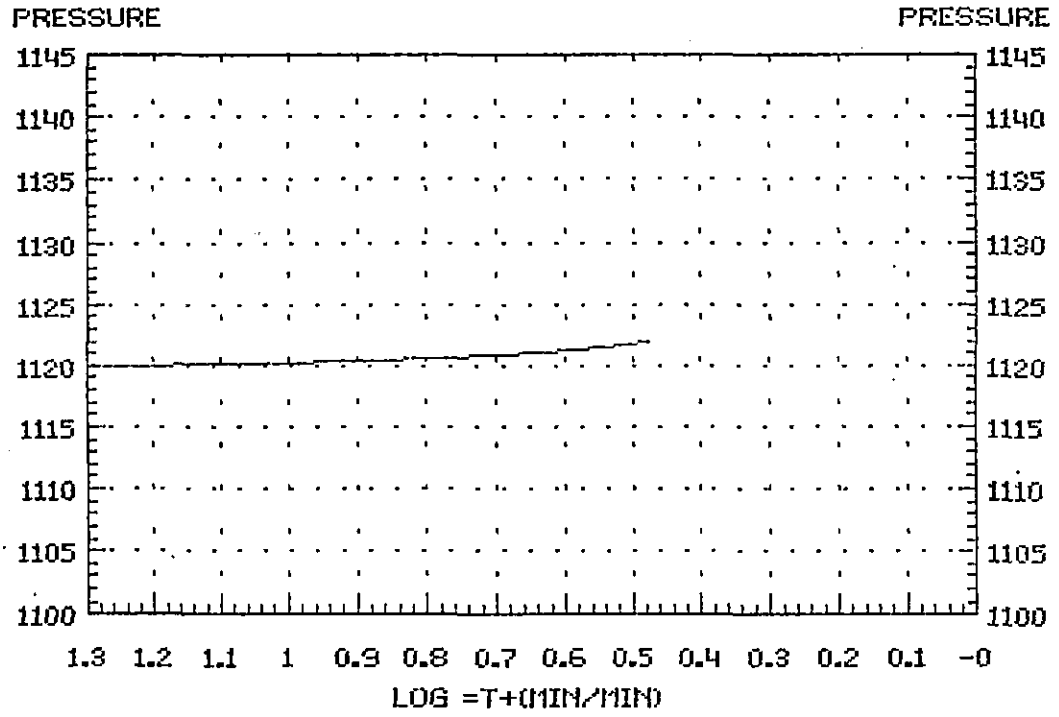
HEYEN "B"#12DST #5
FINAL SHUTIN
60 TOTAL FLOW TIME

Slope	-2.13 psi/cycle
P *	1,123 psi

	TIME(MIN)	Pws (psi)	Horn T	Log Horn T	<> PRESSURE
X	3	1120.0	21	1.322	1120.0
	6	1120.2	11	1.041	0.2
	9	1120.4	8	0.885	0.2
	12	1120.6	6	0.778	0.2
	15	1120.8	5	0.699	0.2
	18	1121.0	4	0.637	0.2
	21	1121.2	4	0.586	0.2
	24	1121.4	4	0.544	0.2
	27	1121.6	3	0.508	0.2
X	30	1121.8	3	0.477	0.2

HORNER PLOT

DST #5 FINAL SHUTIN
RECORDER # 10248



TRILOBITE TESTING COMPANY ORIGINAL

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 2921 Date 8/30/90

Company Name HALLWOOD PETROLEUM INC

Lease HEYEN "B" #12 Test No. 5

County STAFFORD Sec. 31 Twp. 32S Rng. 11W

SAMPLER RECOVERY

Gas 0 CU.FT. 0 ML

Oil 400 ML

Mud 0 ML

Water 3600 ML

Other 0 ML

Pressure 100 PSI

Total 4000 ML

PIT MUD ANALYSIS

Chlorides ppm.

Resistivity .42 ohms @ 92 F

Viscosity 49

Mud Weight 9.5

Filtrate 15

Other N

SAMPLER ANALYSIS

Resistivity .277 ohms @ 98.4 F

Chlorides 17000 ppm.

Gravity 40 corrected @ 60 F

PIPE RECOVERY

TOP

Resistivity .367 ohms @ 98.3 F

Chlorides 13000 ppm.

MIDDLE

Resistivity .335 ohms @ 97.5 F

Chlorides 14000 ppm.

BOTTOM

Resistivity .278 ohms @ 98.4 F

Chlorides 17000 ppm.

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

№ 2921

Well Name & No. Heyen 'B' #12 Test No. 5 Date 8/30/90

Company Hallwood Petroleum Zone Tested Arbuckle

Address _____ Elevation _____

Co. Rep. / Geo. Jim Musgrave Cont. Duke #1 Est. Ft. of Pay _____

Location: Sec. _____ Twp. _____ Rge. _____ Co. _____ State _____

No. of Copies _____ Distribution Sheet _____ Yes _____ No Turnkey _____ Yes _____ No

Interval Tested 3550-3560 Drill Pipe Size 4½ FH

Anchor Length 10 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3545 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3550 Wt. Pipe I.D. — 2.7 Ft. Run 909

Total Depth 3560 Drill Collar — 2.25 Ft. Run _____

Mud Wt. 9.5 lb / gal. Viscosity 49 Filtrate 15

Tool Open @ 12:12 PM Initial Blow strong blow built to bottom of bucket in 20 seconds (blow back built to 1½)

Final Blow strong - to bottom of bucket in 1 Minute

Recovery — Total Feet 2520 Flush Tool? _____

Rec. 90 Feet of GIP

Rec. 60 Feet of clean gassy oil 15% gas 85% oil

Rec. 60 Feet of gassy MCO 30% gas 45% oil 25% mud

Rec. 400 Feet of OCW 10% gas 20% oil 70% Water

Rec. 400 Feet of OCW 10% gas 10% oil 80% Water

BHT _____ °F Gravity 43 °API @ 90 °F Corrected Gravity 40 °API

RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud	1837 PSI	AK1 Recorder No.	10248	Range	4400
(B) First Initial Flow Pressure	394 PSI	@ (depth)	3552	w/Clock No.	27501
(C) First Final Flow Pressure	1040 PSI	AK1 Recorder No.	13615	Range	4575
(D) Initial Shut-In Pressure	1106 PSI	@ (depth)	3559	w/Clock No.	14389
(E) Second Initial Flow Pressure	1073 PSI	AK1 Recorder No.		Range	
(F) Second Final Flow Pressure	1106 PSI	@ (depth)		w/Clock No.	
(G) Final Shut-In Pressure	1117 PSI	Initial Opening	30	Test	400
(H) Final Hydrostatic Mud	1804 PSI	Initial Shut-In	30	Jars	✓
		Final Flow		Safety Joint	✓
		Final Shut-In		Straddle	
				Circ. Sub	35
				Sampler	100
				Extra Packer	
				Other	
				TOTAL PRICE $	535

1600' sl oil specked water 1-2% oil

Approved By Jim Musgrave

Our Representative C.W. Simpson

Printcraft Printers - Hays, KS

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

ORIGINAL

Drill-Stem Test Data

Well Name & No. HEYEN "B" #12 Test No. 6 Date 8/31/90

Company HALLWOOD PETROLEUM INC Zone Tested ARBUCKLE

Address P.O. BOX 378111 DENVER CO 80237 Elevation 1822 KB

Co. Rep./Geo. MR JIM MUSGROVE Cont. DUKE #1 Est. Ft. of Pay 0

Location: Sec. 31 Twp. 32S Rge. 11W Co. STAFFORD State KANSAS

Interval Tested 3545-3553 Drill Pipe Size 4.5" FH

Anchor Length 8 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3545 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3553 Wt. Pipe I.D. — 2.7 Ft. Run 0

Total Depth 0 Drill Collar — 2.25 Ft. Run 0

Mud Wt. _____ lb/gal. Viscosity 0 Filtrate _____

Tool Open @ 11:22 AM Initial Blow STRONG BLOW TO BOTTOM OF BUCKET IN 45 SECONDS-(BLOWBACK BUILT TO 2')

Final Blow 3" BLOW TO BOTTOM OF BUCKET IN 1.5 MINUTES- NO BLOW BACK ON SHUTIN)

Recovery — Total Feet 2240 Flush Tool? _____

Rec. 1 Feet of FREE OIL

Rec. 239 Feet of SLIGHTLY OIL SPECKED WATER-2%OIL/98%WATER

Rec. 2000 Feet of WATER WITH FEW OIL SPECKS

Rec. 0 Feet of _____

Rec. 0 Feet of _____

BHT 107 °F Gravity _____ °API @ 0 °F Corrected Gravity 0 °API

RW .24 @ 96 °F Chlorides 19500 ppm Recovery Chlorides 12000 ppm System

(A) Initial Hydrostatic Mud _____ PSI AK1 Recorder No. 10248 Range 4400

(B) First Initial Flow Pressure 124 PSI @ (depth) 3548 w/Clock No. 27501

(C) First Final Flow Pressure 775.6 PSI AK1 Recorder No. 13277 Range 4150

(D) Initial Shut-In Pressure 1085.4 PSI @ (depth) 3645 w/Clock No. 14389

(E) Second Initial Flow Pressure 821.3 PSI AK1 Recorder No. 0 Range 0

(F) Second Final Flow Pressure 980.7 PSI @ (depth) 0 w/Clock No. 0

(G) Final Shut-In Pressure 1085.6 PSI Initial Opening 30

(H) Final Hydrostatic Mud _____ PSI Initial Shut-In 30

Final Flow 30

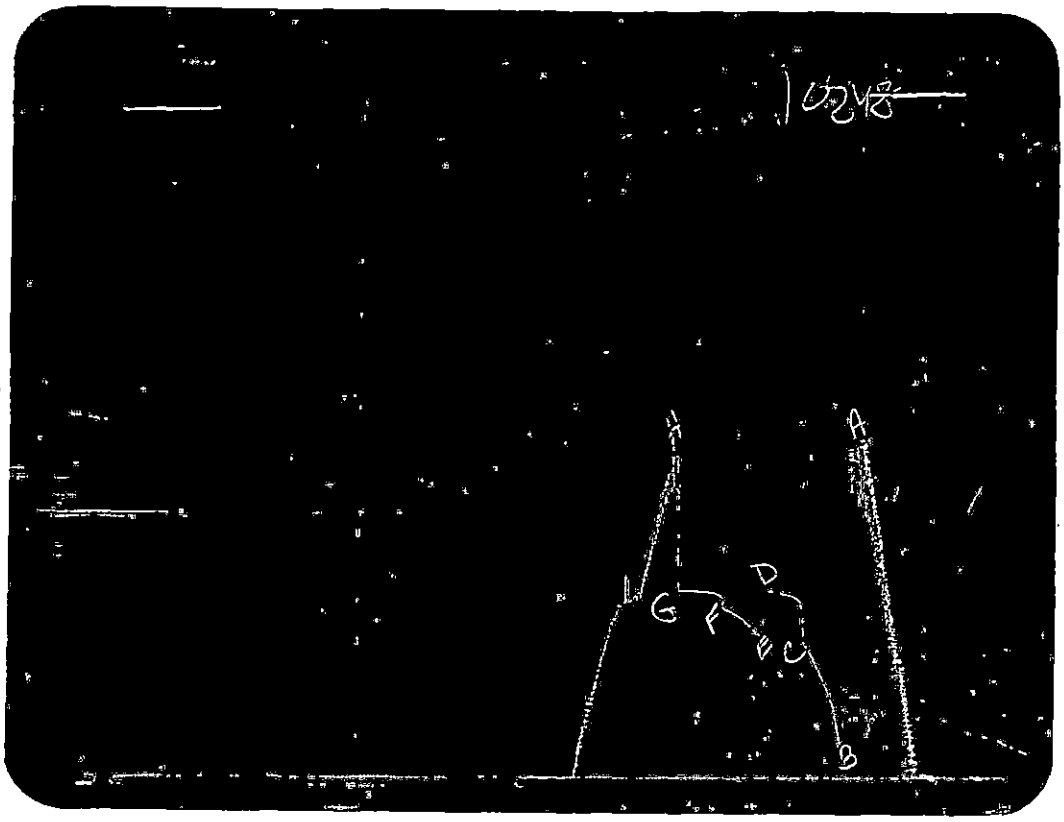
Final Shut-In 30

MR PAUL SIMPSON 785

Our Representative _____ TOTAL PRICE $ _____

Printcraft Printers - Hays, KS

DST# 1 RECORDER# 10345

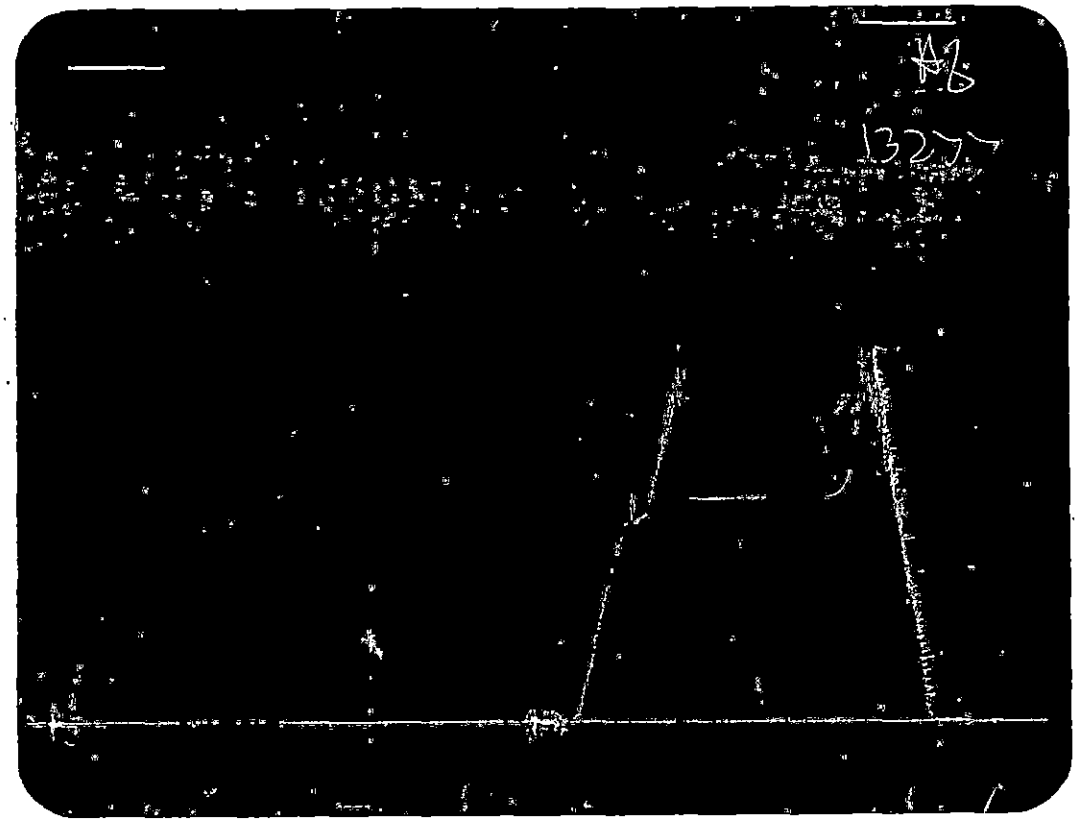


This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	Office Reading	
(A) Initial Hydrostatic Mud			PSI
(B) First Initial Flow Pressure	124	124	PSI
(C) First Final Flow Pressure	779	775.6	PSI
(D) Initial Closed-in Pressure	1084	1085.4	PSI
(E) Second Initial Flow Pressure	818	821.3	PSI
(F) Second Final Flow Pressure	984	980.7	PSI
(G) Final Closed-in Pressure	1084	1085.6	PSI
(H) Final Hydrostatic Mud			PSI

ORIGINAL

DST# _____ RECORDER# 13277



This is an actual photograph of recorder chart.

POINT	PRESSURE Field Reading	PRESSURE Office Reading	
(A) Initial Hydrostatic Mud			PSI
(B) First Initial Flow Pressure			PSI
(C) First Final Flow Pressure			PSI
(D) Initial Closed-In Pressure			PSI
(E) Second Initial Flow Pressure			PSI
(F) Second Final Flow Pressure			PSI
(G) Final Closed-In Pressure			PSI
(H) Final Hydrostatic Mud			PSI

TRILOBITE TESTING COMPANY

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 2922 Date 8/31/90

Company Name HALLWOOD PETROLEUM INC

Lease HEYEN "B" #12 Test No. 6

County STAFFORD Sec. 31 Twp. 32S Rng. 11W

SAMPLER RECOVERY

Gas 0 CU.FT. 0 ML

Oil 150 ML

Mud 0 ML

Water 3850 ML

Other 0 ML

Pressure 25 PSI

Total 4000 ML

PIT MUD ANALYSIS

Chlorides 12000 ppm.

Resistivity .38 ohms @ 77 F

Viscosity 0

Mud Weight

Filtrate

Other N

SAMPLER ANALYSIS

Resistivity .241 ohms @ 97 F

Chlorides 19500 ppm.

Gravity 40 corrected @ 60 F

PIPE RECOVERY

TOP

Resistivity .28 ohms @ 97.2 F

Chlorides 18000 ppm.

MIDDLE

Resistivity .249 ohms @ 95.9 F

Chlorides 19500 ppm.

BOTTOM

Resistivity .242 ohms @ 96 F

Chlorides 19500 ppm.

TRILOBITE TESTING COMPANY ORIGINAL

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

No. 2922

Well Name & No. Bryan "B" #17 Test No. 6 Date 8/31/90

Company Hallwood Petroleum Zone Tested Arbuckle

Address _____ Elevation _____

Co. Rep. / Geo. Jim Musgrave Cont. Duke #1 Est. Ft. of Pay _____

Location: Sec. 31 Twp. 32s Rge. 11w Co. Stafford State Ks

No. of Copies _____ Distribution Sheet ____ Yes ____ No Turnkey ____ Yes ____ No

Interval Tested 3545-3553 Drill Pipe Size 4½ FH

Anchor Length 8 Top Choke — 1" _____ Bottom Choke — ¾" _____

Top Packer Depth 3545 Hole Size — 7⅞" _____ Rubber Size — 6¾" _____

Bottom Packer Depth 3553-3558 Wt. Pipe I.D. — 2.7 Ft. Run _____

Total Depth 3560 Drill Collar — 2.25 Ft. Run _____

Mud Wt. _____ lb / gal. Viscosity _____ Filtrate _____

Tool Open @ 11:22 AM Initial Blow strong blow to bottom of bucket in 45 seconds (blowback built to 2")

Final Blow 3" blow to bottom of bucket in 1½ minutes (no blowback on shut-in)

Recovery — Total Feet 2240 Flush Tool? _____

Rec. 1 Feet of FO

Rec. 239 Feet of slgt spotted water 2% oil 98% water

Rec. 2000 Feet of water w/ few oil spots

Rec. _____ Feet of _____

Rec. _____ Feet of _____

BHT 107 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API

RW .24 @ 96 °F Chlorides 19,500 ppm Recovery Chlorides 12,000 ppm System

(A) Initial Hydrostatic Mud	_____ PSI	AK1 Recorder No.	10218	Range	4400
(B) First Initial Flow Pressure	124 PSI	@ (depth)	3548	w/Clock No.	27501
(C) First Final Flow Pressure	273 PSI	AK1 Recorder No.	13277	Range	4150
(D) Initial Shut-In Pressure	1084 PSI	@ (depth)	3645	w/Clock No.	14389
(E) Second Initial Flow Pressure	818 PSI	AK1 Recorder No.	_____	Range	_____
(F) Second Final Flow Pressure	984 PSI	@ (depth)	_____	w/Clock No.	_____
(G) Final Shut-In Pressure	1084 PSI	Initial Opening	30	Test	400
(H) Final Hydrostatic Mud	_____ PSI	Initial Shut-In	30	Jars	_____
		Final Flow	30	Safety Joint	_____
		Final Shut-In	30	Straddle	250
				Circ. Sub	35
				Sampler	100
				Extra Packer	_____
				Other	_____
				TOTAL PRICE $	785

Approved By _____

Our Representative _____

Printcraft Printers - Hays, KS