

TRILOBITE TESTING COMPANY

Computer Inventoried

P.O. Box 362 • Hays, Kansas 67601

CONFIDENTIAL

RELEASED

Drill-Stem Test Data

OCT 09 1991

Well Name & No.	LIBERAL #1-31	Test No.	1	Date	7/4/90
Company	ENSIGN OPERATING COMPANY	Zone Tested	CHESTER		
Address	621 17th ST SWT 1800 DENVER CO 80293	Elevation	2874 KB		
Co. Rep./Geo.	MR DUANE MOREDOCK	Cont.	H-30 #1	Est. Ft. of Pay	8
Location: Sec.	31	Twp.	34S	Rge.	33W
		Co.	SEWARD	State	KANSAS

FROM CONFIDENTIAL

Interval Tested	6130-6250	Drill Pipe Size	4.5" XH
Anchor Length	120	Top Choke — 1"	Bottom Choke — 1/4"
Top Packer Depth	6125	Hole Size — 7 7/8"	Rubber Size — 6 3/4"
Bottom Packer Depth	6130	Wt. Pipe I.D. — 2.7 Ft. Run	0
Total Depth	6250	Drill Collar — 2.25 Ft. Run	335
Mud Wt.	9.2	lb/gal.	Viscosity 46 Filtrate 8.8
Tool Open @	9:10 PM	Initial Blow	STRONG BLOW-BOTTOM OF BUCKET IN 30 SECONDS
GAS TO SURFACE 2 MINUTES-GAUGED 3036 MCF/D			
Final Blow	STRONG BLOW-BOTTOM OF BUCKET SOON AS TOOL		
OPENED-GAUGED 3155 MCF/D			

Recovery — Total Feet	60	Flush Tool?	NO
Rec.	60	Feet of	DRILLING MUD
Rec.	0	Feet of	
Rec.	0	Feet of	
Rec.	0	Feet of	
Rec.	0	Feet of	

BHT	123	%F Gravity		%API @	0	%F Corrected Gravity	0	%API	
RW		@		%F Chlorides		ppm Recovery	1600	ppm System	
(A) Initial Hydrostatic Mud	3050.2	PSI	AK1 Recorder No.	5495	Range	4200			
(B) First Initial Flow Pressure	629.9	PSI	@ (depth)	6133	w/Clock No.	8376			
(C) First Final Flow Pressure	706.7	PSI	AK1 Recorder No.	13337	Range	3975			
(D) Initial Shut-In Pressure	1194.2	PSI	@ (depth)	6247	w/Clock No.	25814			
(E) Second Initial Flow Pressure	701.4	PSI	AK1 Recorder No.	0	Range	0			
(F) Second Final Flow Pressure	730.1	PSI	@ (depth)	0	w/Clock No.	0			
(G) Final Shut-In Pressure	1176.3	PSI	Initial Opening	30					
(H) Final Hydrostatic Mud	2966.8	PSI	Initial Shut-In	60					
			Final Flow	30					
			Final Shut-In	120					

STATE CORPORATION COMMISSION

SEP 20 1990

MR TOM HORACEK

800

Our Representative

CONSERVATION DIVISION
Wichita, Kansas

TOTAL PRICE \$

21-24-33W

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

CONFIDENTIAL

Drill-Stem Test Data

Well Name & No.	LIBERAL #1-31	Test No.	2	Date	7/8/90
Company	ENSIGN OPERATING CO	Zone Tested	MISSISSIPPI		
Address	621 17th SWT 1800 DENVER CO 80293		Elevation	2874 KB	
Co. Rep./Geo.	MR DUANE MOREDOCK	Cont.	H-30 DRLG	Est. Ft. of Pay	10
Location: Sec.	31	Twp.	34S	Rge.	33W
		Co.	SEWARD	State	KANSAS

Interval Tested	6467-6662	Drill Pipe Size	4.5" XH
Anchor Length	195	Top Choke — 1"	Bottom Choke — 1/4"
Top Packer Depth	6467	Hole Size — 77/8"	Rubber Size — 63/4"
Bottom Packer Depth	6662	Wt. Pipe I.D. — 2.7 Ft. Run	0
Total Depth	6944	Drill Collar — 2.25 Ft. Run	150
Mud Wt.	9.3	lb/gal.	Viscosity 65 Filtrate 6.0
Tool Open @	11:20 AM	Initial Blow	STRONG BLOW - OFF BOTTOM OF BUCKET IN 30
SECONDS - ISI: BLED OFF BLOW-BOTTOM OF BUCKET THROUGHOUT			
Final Blow	STRONG BLOW-OFF BOTTOM THROUGHOUT-GAS TO SURFACE		
IN 10 MINUTES-GAUGED 13.1 MCF-FSI: OFF BOTTOM THROUGHOUT			

Recovery — Total Feet	1090	Flush Tool?	NO
Rec.	1090	Feet of	GASSY DRILLING MUD
Rec.	0	Feet of	
Rec.	0	Feet of	
Rec.	0	Feet of	
Rec.	0	Feet of	
BHT	132	%F Gravity	88
RW	.28	%F Chlorides	3405
		ppm Recovery	5495
		Chlorides	1300
		ppm System	4200
(A) Initial Hydrostatic Mud	468.4	PSI	AK1 Recorder No. 6470 Range 8376
(B) First Initial Flow Pressure	597.3	PSI	@ (depth) 13337 Range 3975
(C) First Final Flow Pressure	3027.5	PSI	AK1 Recorder No. 6647 Range 25814
(D) Initial Shut-In Pressure	592.3	PSI	@ (depth) 2023 Range 4000
(E) Second Initial Flow Pressure	653.2	PSI	@ (depth) 6941 Range 17640
(F) Second Final Flow Pressure	2944.2	PSI	Initial Opening 30
(G) Final Shut-In Pressure	3113.2	PSI	Initial Shut-In 60
(H) Final Hydrostatic Mud		PSI	Final Flow 60
		PSI	Final Shut-In 120

CONSERVATION DIVISION
Wichita, Kansas

MR TOM HORACEK

1050

Our Representative

TOTAL PRICE \$

Computer Invented

TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

No 3078

Well Name & No. Liberal # 1-31 Test No. 1 Date 7-4-90
 Company Ensign Operating Co. Zone Tested Morrow
 Address 621 17th St. Suite 1800, Denver Col. 80293 Elevation 8862 (GL)
 Co. Rep. / Geo. Duane Moredak Cont. H-30 #1 Est. Ft. of Pay _____
 Location: Sec. 31 Twp. 34 S Rge. 33 W Co. Seward State KS
 No. of Copies _____ Distribution Sheet _____ Yes _____ No _____ Turnkey _____ Yes 1 No _____

Interval Tested 6130 - 6250 Drill Pipe Size 4.5 x H
 Anchor Length 120' Top Choke — 1" _____ Bottom Choke — 3/4" _____
 Top Packer Depth 6125 Hole Size — 7 7/8" _____ Rubber Size — 6 3/4" _____
 Bottom Packer Depth 6130 Wt. Pipe I.D. — 2.7 Ft. Run _____
 Total Depth 6250 Drill Collar — 2.25 Ft. Run 935
 Mud Wt. 9.2 lb / gal. Viscosity 46 Filtrate 8.8
 Tool Open @ 9:10 am Initial Blow Strong blow - bottom of bucket 30 sec. gas to surface 2 min.
Gauged @ 3036 mcf
 Final Blow Strong blow - bottom of bucket soon as tool opened
Gauged @ 3155 mcf
 Recovery — Total Feet 60' Flush Tool? no

Rec. _____ Feet of _____
 Rec. _____ Feet of _____
 Rec. 60' Feet of Drlg mud
 Rec. _____ Feet of _____
 Rec. _____ Feet of _____
 BHT 123° °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
 RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 1600 ppm System
 (A) Initial Hydrostatic Mud 3054 PSI AK1 Recorder No. 5495 Range 4200
 (B) First Initial Flow Pressure 632 PSI @ (depth) 6133 w/Clock No. 8376
 (C) First Final Flow Pressure 717 PSI AK1 Recorder No. 13337 Range 3975
 (D) Initial Shut-In Pressure 1193 PSI @ (depth) 6247 w/Clock No. 25814
 (E) Second Initial Flow Pressure 706 PSI AK1 Recorder No. _____ Range _____
 (F) Second Final Flow Pressure 727 PSI @ (depth) _____ w/Clock No. _____
 (G) Final Shut-In Pressure 1172 PSI Initial Opening 30 Test 400.00
 (H) Final Hydrostatic Mud 2783 PSI Initial Shut-In 60 Jars x 200.00
 Final Flow 30 Safety Joint x 50.00
 Final Shut-In 120 Straddle _____

Approved By [Signature]Our Representative Tom Horack

Printcraft Printers - Hays, KS

Circ. Sub _____
 Sampler x 150.00
 Extra Packer _____
 Other _____
 TOTAL PRICE \$ 800.00



GAS VOLUME REPORT

Ensign Operating Co.
OPERATOR

Liberal 1-31

WELL NAME AND NO.

DST NO.

Remarks: Gas to surface in 2 min.

TRILOBITE TESTING COMPANY

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 3078 Date 7-4-90
Company Name Ensign Operating Co.
Lease Liberal #1-31 Test No. #1
County Seward Sec. 31 Twp. 34s Rng. 33w

SAMPLER RECOVERY

Gas 4000 ML
Oil 85% methane ML
Mud 6% S.G. ML
Water _____ ML
Other _____ ML
Pressure 1100 PSI
Total 4000 ML

PIT MUD ANALYSIS

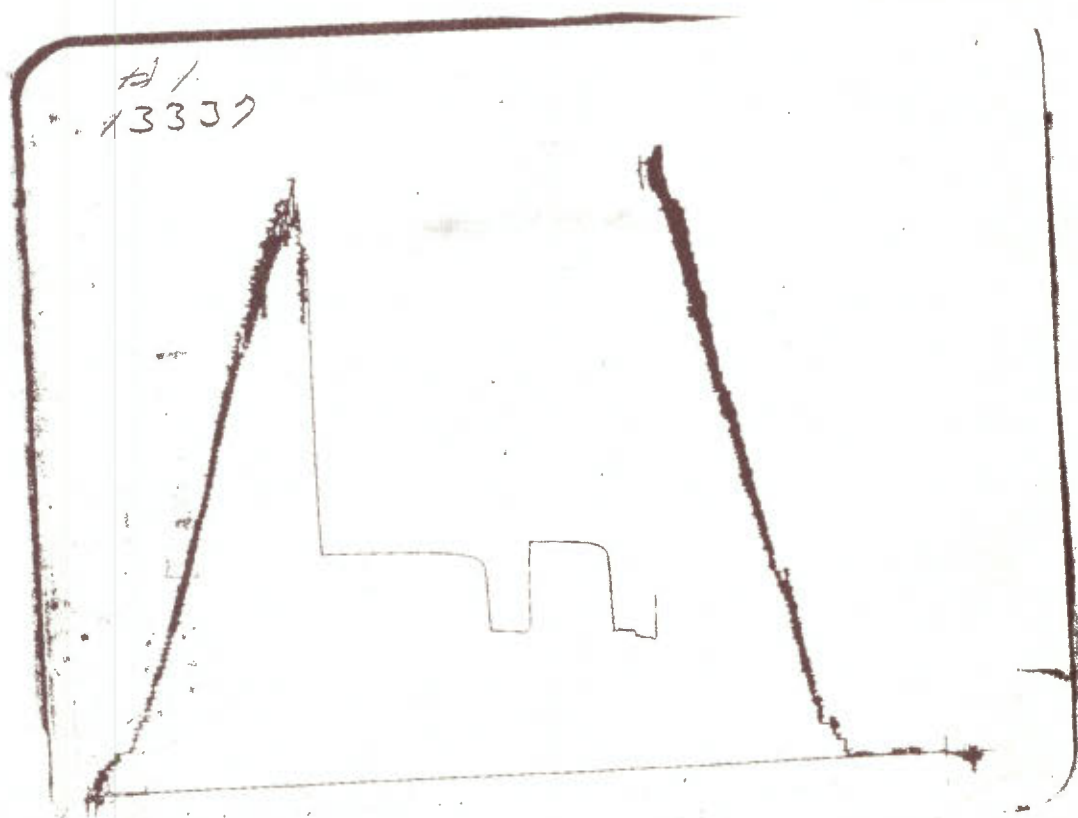
Chlorides 1900 ppm.
Resistivity 3.5 ohms @ 65 F
Viscosity 46
Mud Weight 9.2
Filtrate 8.8
Other _____

SAMPLER ANALYSIS

Resistivity _____ ohms @ _____ F
Chlorides _____ ppm.
Gravity _____ corrected @ 60 F

PIPE RECOVERY

TOP
Resistivity _____ ohms @ _____ F
Chlorides _____ ppm.
MIDDLE
Resistivity _____ ohms @ _____ F
Chlorides _____ ppm.
BOTTOM
Resistivity 2.5 ohms @ 69 F
Chlorides 2200 ppm.



TRILOBITE TESTING COMPANY

P.O. Box 362 • Hays, Kansas 67601

TEST TICKET

No 3079

Well Name & No.	Liberal #1-31	Test No.	2	Date	7-8-90
Company	Ensign Operating Co.	Zone Tested	Miss		
Address	621 17th St. Suite 1800, Denver Col. 80293		Elevation	2874 (KB)	
Co. Rep. / Geo.	Duane Moredock	Cont.	H-30 Dch #1	Est. Ft. of Pay	10
Location: Sec.	31	Twp.	34s	Rge.	33w
		Co.	Seward	State	KS.
No. of Copies	5	Distribution Sheet	Yes	X	No
		Turnkey	Yes	X	No

Interval Tested	6467 - 6662	Drill Pipe Size	4.5 x 11
Anchor Length	195'	Top Choke — 1"	Bottom Choke — 1/4"
Top Packer Depth	6462 - 6467	Hole Size — 7 7/8"	Rubber Size — 6 3/4"
Bottom Packer Depth	6662	Wt. Pipe I.D. — 2.7 Ft. Run	-
Total Depth	6944	Drill Collar — 2.25 Ft. Run	150'
Mud Wt.	9.3	Viscosity	65
	lb / gal.	Filtrate	6.0
Tool Open @	11:20 AM	Initial Blow	Strong blow - bottom of bucket 30 sec.
		ISI - bled off blow - bottom of bucket through out.	
Final Blow	Strong blow - off bottom through out.	Gas to surface	10 min.
	FSI - off bottom through out.	gauged @	13.1 mcf
Recovery — Total Feet	1090'	Flush Tool?	no
Rec.	Feet of		
Rec.	Feet of		
Rec.	1090	Feet of	Gassy Drlg mud 8 1/2 methane 68
Rec.	Feet of		
Rec.	Feet of		
BHT	132	°F Gravity	°API @
		°F Corrected Gravity	°API
RW	.28 @ 88	°F Chlorides	19000 ppm Recovery
		Chlorides	1300 ppm System
(A) Initial Hydrostatic Mud	3413	PSI	AK1 Recorder No. 5495 Range 4200
(B) First Initial Flow Pressure	395	PSI	@ (depth) 6470 w/Clock No. 8376
(C) First Final Flow Pressure	592	PSI	AK1 Recorder No. 13337 Range 3975
(D) Initial Shut-In Pressure	3015	PSI	@ (depth) 6647 w/Clock No. 25814
(E) Second Initial Flow Pressure	592	PSI	AK1 Recorder No. 2023 Range 4000
(F) Second Final Flow Pressure	651	PSI	@ (depth) 6941 w/Clock No. 17640
(G) Final Shut-In Pressure	2946	PSI	Initial Opening 30 Test 400.00
(H) Final Hydrostatic Mud	3107	PSI	Initial Shut-In 60 Jars X 200.00
		Final Flow	60 Safety Joint X 50.00
		Final Shut-In	120 Straddle X 250.00

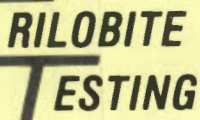
Approved By

Duane E. Moredock

Our Representative

Tom Horacek

TOTAL PRICE \$ 1050.00



GAS VOLUME REPORT

Ensign Operating Co.

VOLUME REPORT #1-31

WELL NAME AND NO.

DST NO.

Remarks: Gas to surface 10 min into 2nd opening

TRILOBITE TESTING COMPANY

P.O. Box 362 - Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 3079 Date 7-8-90
Company Name Ensign Operating Co.
Lease Liberal #131 Test No. #2 Marphan
County Seward Sec. 31 Twp. 34s Rng. 33w

SAMPLER RECOVERY

7-8-90

Gas 2500 ML
Oil _____ ML
Mud 900 ML
Water 600 ML
Other _____ ML
Pressure 2400 PSI
Total 4000 ML

PIT MUD ANALYSIS

Chlorides 1300 ppm.
Resistivity 4.8 ohms @ 69° F
Viscosity 654
Mud Weight 9.3
Filtrate 6.0
Other 6.4 7.254 EX-137

SAMPLER ANALYSIS

Resistivity 1.28 ohms @ 88 F
Chlorides 19000 ppm.
Gravity _____ corrected @ 60 F

PIPE RECOVERY

TOP
Resistivity 2.5 ohms @ 68° F
Chlorides 2400 ppm.
MIDDLE
Resistivity _____ ohms @ _____ F
Chlorides _____ ppm.
BOTTOM
Resistivity 2.5 ohms @ 68° F
Chlorides 2400 ppm.



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#2
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