

ORIGINAL

RELEASED

CONFIDENTIAL

JUL 2 1991

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

FROM CONFIDENTIAL

API NO. 15- 119-20,806-00-00

County Meade

SE/4 Sec. 23 Twp. 33S Rge. 29  East  West

1320 Ft. North from Southeast Corner of Section

1320 Ft. West from Southeast Corner of Section  
(NOTE: Locate well in section plat below.)

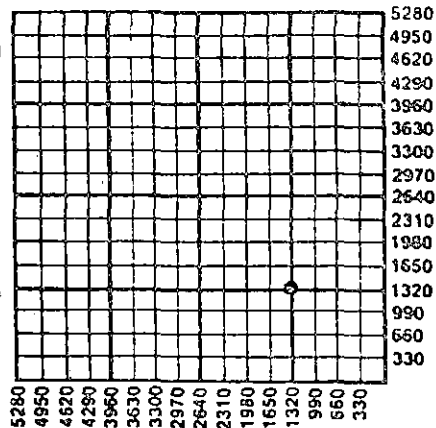
Lease Name Warkentin Well # 1-23

Field Name Wildcat

Producing Formation Morrow

Elevation: Ground 2493' KB 2505'

Total Depth 6,300' PBDT



Amount of Surface Pipe Set and Cemented at 1540 Feet

Multiple Stage Cementing Collar Used? Yes  No

If yes, show depth set \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from \_\_\_\_\_

feet depth to \_\_\_\_\_ w/ \_\_\_\_\_ SX amt.

Operator: License # \_\_\_\_\_

Name: Ensign Operating Co.

Address 621 N7th St., Suite 1800

City/State/Zip Denver, CO 80293

Purchaser: consolidated Fuel Gas Supply Co.

Operator Contact Person: Larry Hartnett

Phone (303) 293-9999

Contractor: Name: H-30 Drilling, Inc.

License: 5107

Wellsite Geologist: John Pruitt

Designate Type of Completion

New Well  Re-Entry  Workover

Oil  SWD  Temp. Abd.

Gas  Inj  Delayed Comp.

Dry  Other (Core, Water Supply, etc.)

If OWD: old well info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Comp. Date \_\_\_\_\_ Old Total Depth \_\_\_\_\_

Drilling Method:

Mud Rotary  Air Rotary  Cable

2-16-90 2-28-90 3/15/90

Spud Date Date Reached TD Completion Date

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: *L. Harrison*

Title: Production Operations Manager Date 6/1/90

Subscribed and sworn to before me this 1st day of June

Notary Public: *Penelope J. Steers*

Date: \_\_\_\_\_

My Commission expires October 21, 1991  
621 17th St. Suite 1800  
Denver, Colorado 80293

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)

MINNEAPOLIS

JAN 19 1990

SIDE TWO

Operator Name Ensign Operating Company Lease Name Warkentin Well # 1-23  
 Sec. 23 Twp. 33 Rge. 29  East  West  
 County Meade

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  Yes  No  
 (Attach Additional Sheets.)  
 Samples Sent to Geological Survey  Yes  No  
 Cores Taken  Yes  No  
 Electric Log Run  Yes  No  
 (Submit Copy.)

Formation Description  
See Attached  
 Log  Sample

Name	Top	Bottom
Sand and Red Bed	0	1,184'
Red Bed	1,184'	1,565'
Red Bed and Shale	1,585'	1,850'
Shale	1,850'	2,320'
Shale and Lime	2,320'	2,650'
Lime and Shale	2,650'	3,430'
Shale and Lime	3,430'	3,700'
Lime and Shale	3,700'	4,095'
Shale and Lime	4,095'	4,275'
Lime and Shale	4,275'	4,465'

CASING RECORD  New  Used  
 Report all strings set-conductor, surface, intermediate, production, etc. RTD 6,300'

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs./Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12-1/4"	8-5/8"	24#	1540'	Lite Wt.	440	3% cc
					Class C	170	3% cc
Production	7-7/8"	4-1/2"	14#	5939'	Premium	400	4% KCL

Shots Per Foot	PERFORATION RECORD Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
2 JSPF	5700-5705'	None	--

TUBING RECORD Size 2-3/8" Set At 5705' Packer At None Liner Run  Yes  No

Date of First Production 3/15/90 Producing Method  Flowing  Pumping  Gas Lift  Other (Explain)  
 Estimated Production Per 24 Hours: Oil 20 Bbls. Gas 1500 Mcf Water 0 Bbls. Gas-Oil Ratio 75.000 Gravity 60

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 5700-5705'

MINNEAPOLIS  
 JAN 19 1990  
 8:00 AM



REMIT TO:  
P.O. BOX 951046  
DALLAS, TX 75395-1046

**ORIGINAL** HALLIBURTON SERVICES **CONFIDENTIAL**  
A Halliburton Company

INVOICE NO.	DATE
	03/01/1990

WELL LEASE NO./PLANT NAME		WELL/PLANT LOCATION		STATE	WELL/PLANT OWNER
WARKENTIN 1-23		MEADE		KS	SAME
SERVICE LOCATION	CONTRACTOR		JOB PURPOSE	TICKET DATE	
LIBERAL	H-30 INC		REPAIR FOR CASING	03/01/1990	
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
273943	V W MCKNAB II			COMPANY TRUCK	91522

**PAID**  
APR 05 1990

ENSIGN OPERATING COMPANY  
P O BOX 937  
GARDEN CITY, KS 67846

JUL 02 1991

DIRECT CORRESPONDENCE TO:  
SUITE 600  
COLORADO DERBY BUILDING  
WICHITA, KS 67202-0000

FROM CONFIDENTIAL

PRICE REF. NO.	DESCRIPTION	QUANTITY	U/M	UNIT PRICE	AMOUNT
000-117	A - MID CONTINENT MILEAGE	30	MI	2.20	66.00
001-016	CEMENTING CASING	5939	FT	1,305.00	1,305.00
018-317	SUPER FLUSH	18	SK	74.00	1,332.00
314-163	CLAYFIX II	10	GAL	17.25	172.50
80	FORM PKR SHOE FLAP VLV 4 1/2"	1	EA	2,300.00	2,300.00
855.128					
50	FLUIDMASTER CENTRALIZER 4 1/2"	10	EA	42.00	420.00
807.93504					
66	FASGRIP LIMIT CLAMP 4 1/2"	1	EA	9.60	9.60
807.64021					
82	FILL-UP UNIT	1	EA	45.00	45.00
855.02545					
350	HALLIBURTON WELD-A	1	LB	11.00	11.00
890.10802					
504-043	PREMIUM CEMENT	400	SK	6.85	2,740.00
507-775	HALAD-322	263	LB	5.60	1,472.80
500-959	SUPER CBL	94	LB	21.50	2,021.00
508-002	POTASSIUM CHLORIDE	450	LB	.23	103.50
500-207	BULK SERVICE CHARGE	400	CFT	.95	380.00
500-306	MILEAGE CMTG MAT DEL OR RETURN	768.160	TMI	.70	537.71
INVOICE SUBTOTAL					12,916.11
DISCOUNT-(BID)					1,937.40-
INVOICE BID AMOUNT					10,978.71
*-KANSAS STATE SALES TAX					362.73
*-SEWARD COUNTY SALES TAX					85.34
INVOICE TOTAL - PLEASE PAY THIS AMOUNT					\$11,426.78

LTH  
3/14/90  
7070

RECEIVED  
STATE CORPORATION COMMISSION

OCT 15 1990

TERMS INVOICES PAYABLE NET BY THE 20TH OF THE FOLLOWING MONTH AFTER DATE OF INVOICE. UPON CUSTOMER'S DEFAULT IN PAYMENT OF CUSTOMER'S ACCOUNT BY THE LAST DAY OF THE MONTH FOLLOWING THE MONTH IN WHICH THE INVOICE IS DATED, CUSTOMER AGREES TO PAY INTEREST THEREON AFTER DEFAULT AT THE HIGHEST LAWFUL CONTRACT RATE APPLICABLE BUT NEVER TO EXCEED 18% PER ANNUM IN THE EVENT IT BECOMES NECESSARY TO EMPLOY AN ATTORNEY TO

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FROM CONFIDENTIAL **CONFIDENTIAL**  
**ORIGINAL**

Ensign Operating Company  
#1-23 Warkentin  
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FORMATION TOPS

<u>Formation</u>	<u>Sample</u>	<u>Datum</u>	<u>E. Log</u>	<u>Datum</u>
Council Grove	3038'	(- 533')	3055'	(- 550')
Shawnee	3820'	(-1315')	3839'	(-1334')
Heebner	4326'	(-1829')	4337'	(-1832')
Toronto	4379'	(-1874')	4396'	(-1891')
Lansing	4486'	(-1981')	4485'	(-1980')
Marmaton	5136'	(-2631')	5159'	(-2654')
Cherokee	5289'	(-2784')	5356'	(-2851')
Atoka	5436'	(-2931')	5496'	(-2991')
Morrow Shale	5604'	(-3099')	5671'	(-3166')
Morrow Sand	5676'	(-3171')	5700'	(-3195')
Chester	5731'	(-3226')	5750'	(-3245')
Chester Bar	5787'	(-3282')	5818'	(-3313')
Chester Shale Marker	5820'	(-3315')	5840'	(-3335')
St. Genevieve	6005'	(-3500')	6031'	(-3526')
St. Louis	6145'	(-3640')		not on log

STATE COLLEGE  
JUL 0 4 1990

CONSERVATION DIVISION  
WICHITA, KANSAS

JUL 0 2 1991

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SHOW DESCRIPTION: (Continued)

<u>Formation</u>	<u>Interval</u>	<u>Description</u>
Lansing	5068'-5079'	Trace limestone brown, packstone, micritic matrix, slightly dolomitic, microfossils, oolites, tight to good vuggy porosity, trace twinkling gold fluorescence, no cut, fair ring. POOR SHOW.
Marmaton	5236'-5244'	Limestone. Light brown-buff, mudstone to wackestone, micritic, slightly dolomitic, microfossils, oolites, tight to poor vuggy porosity and oomoldic porosity, faint white gold fluorescence in streaks, trace very pale streaming cut, weak ring. POOR SHOW.
Marmaton	5256'-5263'	Limestone. Light brown, mudstone to wackestone, micritic, fractured dolomite in part, oolites, microfossils, tight to fair vuggy porosity, spotty white gold fluorescence, pale streaming cut, fair ring. POOR-FAIR SHOW.
Atoka	5476'-5477'	Limestone. Brown, wackestone to packstone, micritic matrix, dolomitic, oolites, shell fragments, tight to fair vuggy porosity, gold fluorescence, instant streaming cut, good ring. FAIR SHOW.
Atoka	5523'-5527'	Limestone. Brown, mudstone, micritic, slightly dolomitic, microfossils, tight, solid brown oil stain, bright gold fluorescence, no cut, strong ring. POOR SHOW.
Atoka	5592'-5594'	Limestone. Light brown, mudstone, micritic, dolomitic in part, microfossils, tight to poor vuggy porosity, bright gold fluorescence, instant streaming cut, strong ring. POOR SHOW.
Atoka	5610'-5614'	Limestone. Brown, mudstone, micritic, dolomitic, microfossils, tight-poor vuggy porosity, brown oil stain, bright gold fluorescence, instant streaming cut, strong ring. FAIR SHOW.
Morrow Sand	5676'-5700'	Sandstone. Light gray, very fine to fine grained, trace medium grained, subangular-subrounded, well sorted, trace glauconite, limestone pebbles near base, siliceous with quartz overgrowths in part, slightly calcareous in part, tight-good visible porosity, solid brown oil stain, trace pyrite, moderate yellow-bright yellow fluorescence, instant streaming cut, excellent crush cut, fair ring. EXCELLENT SHOW.

STATE OF OKLAHOMA

JUL 0 4 1990

COMMISSIONER OF GEOLOGY  
 WASHINGTON, D.C.

JUL 02 1961

Ensign Operating Company  
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Chester 5816'-5819' Sandstone. Light gray, very fine grain-fine grain, well sorted, trace glauconite, poor-fair porosity, brown oil stain, dull-bright yellow fluorescence, instant slow milky cut, very strong ring. GOOD SHOW.

Chester 5931'-5940' Trace limestone light brown, mudstone, micritic, dolomitic, microfossils, bright gold fluorescence, tight, instant streaming cut, fair ring. POOR SHOW.

Chester 5945'-5947' Trace limestone light brown, mudstone, micritic, dolomitic, pyritic, tight to poor pinpoint porosity, brown oil stain, bright yellow fluorescence, instant streaming cut, poor ring. POOR SHOW.

St. Genevieve 6110'-6120' Limestone. Brown, mudstone, micritic, dolomitic, no visible porosity, bright gold fluorescence, instant streaming cut, fair ring. POOR SHOW.

BIT RECORD:

<u>No.</u>	<u>Size</u>	<u>Make</u>	<u>Type</u>	<u>Depth Out</u>	<u>Feet</u>	<u>Hours</u>
1	12 1/4	SEC	S33S	1565'	1565	10 1/2
2	7 7/8	HTC	ATJ22	5300'	3735	109 1/2
3	7 7/8	HTC	ATJ225	6300'	1000	61 1/4

DRILL STEM TESTS:

All drill stem tests were run by Trilobite Testing of Hays, Kansas. Dan Bangle was tester. Interval depths used herein are sample depths.

DST#1 4700'-4793' (Lansing)  
 30-60-60

1st Open: opened with strong blow. Bottom of bucket in 2 minutes  
 2nd Open: opened strong. Gas to surface in 4 minutes - Max 12.7 MCFD.  
 Rec 520' Gassy Mud with Oil Spots  
 30' Slightly Oil Cut Gassy Mud - 10% Oil, 50% Gas, 40% Mud.

BHT 121°F

FP 98-147, 167-246

SIP 1526

HP 2269-2208

Sampler:

200 ML Gas @ 340 psi  
 1500 ML Oil @ 38° Gravity

JUN 0 1961  
 CONSERVATION DIVISION

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#1-23 Warkentin  
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DST#2 5187'-5300' (Marmaton)  
30-60-60-120

1st Open: opened strong. Bottom of bucket in 10 minutes.

2nd Open: opened strong. Bottom of bucket in 10 minutes.

Rec 310' Water Cut Gassy Mud - 10% Water, 10% Gas, 80% Mud

370' Mud Cut Gassy Water - 30% Mud, 10% Gas, 60% Water

528' Mud Cut Gassy Water - 25% Mud, 5% Gas, 70% Water

BHT 129°F Rw recovery .08 @ 63°F=120,000 ppm Pit=4,000 ppm

FP 127-393, 393-650

SIP 1756-1626

HP 2522-2390

Sampler:

200 ML Gas @ 800 psi

2600 ML salt water Ra=.08 @ 63.6°F=124,000 ppm

DST#3 5537'-5692' (Morrow Sand)  
30-60-30-120

1st Open: opened very strong. Bottom of bucket in 30 seconds.

Gas to Surface in 4 minutes, max 3.454 MCFD in 30 minutes.

2nd open: opened very strong. Gas to Surface immediately - no gauge.

Rubber hose from choke to gauge froze off.

Rec 310' Slightly Oil Cut Gassy Mud

124' Gassy Salt Water

BHT 132°F Rw recovery=.19 @ 56.6°F=52,000 ppm Pit=4,000 ppm

FP 739-887, 887-936

SIP 1976-1966

HP 2695-2634

Sampler:

No recovery.

JUN 04 1990

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