

ORIGINAL

CONFIDENTIAL

SIDE ONE

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

RELEASED

API NO. 15- 15-129-21,035-0000

County Morton

NE NE Sec. 30 Twp. 32S Rgo. 40 East West

4620 Ft. North from Southeast Corner of Section

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

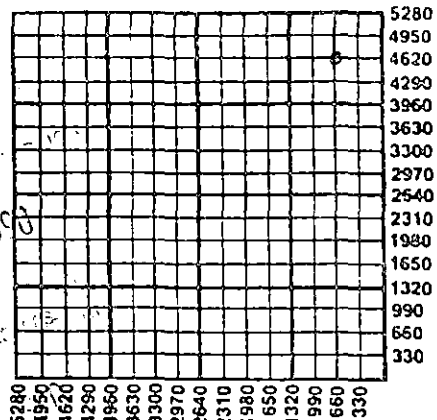
Lease Name Montgomery Well # 1-30

Field Name Wildcat

Producing Formation Morrow

Elevation: Ground 3354' KB 3367'

Total Depth 5900' PBTD 5823'



ALT I
10-15-90

Amount of Surface Pipe Set and Cemented at 1575 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 # 04782 FROM CONFIDENTIAL

Name: Ensign Operating Co.

Address 621-17th St., Suite 1800

City/State/Zip Denver, CO 80293

Purchaser: Consolidated Oil & Gas

Operator Contact Person: L. T. Hartnett

Phone (303) 293-9999

Contractor: Name: H-30 Drilling, Inc.

License: 5107

Wellsite Geologist: Duane Moredock

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

2-1-90 2-11-90 3/10/90

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.

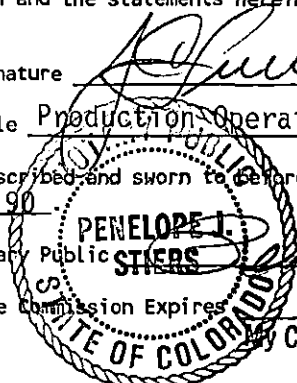
Signature [Signature]

Title Production Operations Manager Date 6/1/90

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

19 90
Notary Public [Signature]

Date Commission Expires _____



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

RECEIVED

DISTRIBUTION

_____ SWD/Rep _____ NGPA

_____ KGS _____ Plug _____ Other _____ (Specify)

OCT 15 1990 10-15-90

CONFIDENTIAL
WICHITA, KAN Form ACO-1 (7-89)

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ORIGINAL JAWA 1970

SIDE TWO

Operator Name Ensign Operating Company Lease Name Montgomery Well # 1-30

Sec. 30 Twp. 32S Rge. 40 East West County Morton

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.

RELEASED

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.)

JUL 0 2 1991

Formation Description

FROM CONFIDENTIAL

Log Sample

Name	Top	Bottom
Red Bed	0	1,575'
Anhydritic	1,575'	2,150'
Lime and Shale	2,150'	2,950'
Shale and Lime	2,950'	3,185'
Lime and Shale	3,185'	3,638'
Shale and Lime	3,638'	3,838'
Lime and Shale	3,838'	4,045'
Shale and Lime	4,045'	4,400'
Lime and Shale	4,400'	4,575'
Shale and Lime	4,575'	5,900'

CASING RECORD

New Used

Rotary Total Depth

5,900'

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 Percent Additives
Surface	12-1/4"	8-5/8"	24#	1575'	Lite Wt. Class H	570	2% cc
Production	7-7/8"	4-1/2"	10.5#	5865'	Class H	375	7% 322

PERFORATION RECORD

Shots Per Foot Specify Footage of Each Interval Perforated

Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used) Depth

1 Shot Each	5408, 5409, 5410, 5412, 5414, 5417, 5419	1500 gal 15% HCl	5408-5419'
1 JSPF	5468-5478'	1500 gal 15% HCl	5468-5478'
1 JSPF	5408-5478'	Erac 80,000 Gal 70% CO2 foam.	
		133,000# 20/40 Sand	

TUBING RECORD

Size

Set At

Packer At

Liner Run

Yes No

2-3/8"

5400'

None

Date of First Production 3/2/90

Producing Method

Flowing Pumping Gas Lift Other (Explain)

Estimated Production Per 24 Hours

Oil 3.3 Bbls.

Gas 1500 Mcf

Water 0 Bbls.

Gas-Oil Ratio 454,000

Gravity 60

Disposition of Gas:

METHOD OF COMPLETION

Production Interval

Vented Sold Used on Lease (If vented, submit ACO-18.)

Open Hole Perforation Dually Completed Commingled

Other (Specify)

5408-5478'

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HALLIBURTON SERVICES
ORIGINAL
A Halliburton Company

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

INVOICE

INVOICE NO.	DATE
90206574	02/13/1990

WELL LEASE NO./PLANT NAME		WELL/PLANT LOCATION		STATE	WELL/PLANT OWNER
MONTGOMERY 1-30		MORTON		KS	SAME
SERVICE LOCATION	CONTRACTOR	JOB PURPOSE		TICKET DATE	
LIBERAL	H-30 DRLG	CEMENT PRODUCTION CASING		02/13/1990	
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
273943	V W MCKNAB II			COMPANY TRUCK	90574

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

PAID
MAR 2 1990

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

PRICE REF. NO.	DESCRIPTION	QUANTITY	U/M	UNIT PRICE	AMOUNT
000-117	PRICING AREA - MID CONTINENT MILEAGE	25	MI	2.20	55.00
		1	UNT		
001-016	CEMENTING CASING	5900	FT	1,290.00	1,290.00
		1	UNT		
593	3-WIPER L-D PLUG - 4 1/2"	1	EA	159.00	159.00
801.0373					
594	4 1/2" LATCH DOWN BAFFLE	1	EA	100.00	100.00
801.03734					
12A	GUIDE SHOE - 4 1/2" 8RD THD.	1	EA	83.00	83.00
825.201					
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					
350	HALLIBURTON WELD-A	1	LB	11.00	11.00
890.10802					
018-317	SUPER FLUSH	14	SK	74.00	1,036.00

INVOICE CODING

RELEASED

CODED BY KW
BATCH # 11-7190
INV. TYPE JB
ACTIVITY DATE _____

727

APPROVED BY Ca
VOUCHER # 11-AP-879
INV. TOTAL 8,678.83
DUE DATE _____

MAR 02 1990

FROM CONFIDENTIAL

CHECK REMARKS: _____

ACCOUNT	A/E	PROPERTY	TYPE	COST CENTER	AMOUNT	DESCRIPTION
951070	840073				8678.83	OCT 15 1990
						CONSERVATION DIVISION

RECEIVED
STATE CORPORATE COMMISSION

CONSERVATION DIVISION

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FORMATION TOPS

Montgomery #1-30
NE NE, Section 30-T32S-R40W
Morton County, Kansas

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Stone Corral	1560'
Herington	2212'
Krider	2242'
Winfield	2306'
Heebner	3674'
Toronto	3691'
Lansing - Kansas City	3788'
Marmaton	4426'
Morrow	5068'
St. Genevieve	5604'

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STAMP

JUL 04 1990

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FORMATION TOPS

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G.L. 3354'
K.B. 3366'

Comparison Well
No. 1-20 Light
NE SW 20 T32S R40W
K.B. 3365'
Surface +3350'

Drill Time Bore Hole
& Samples Geophysical Logs

	Comparison Well	Drill Time & Samples	Bore Hole Geophysical Logs
Tertiary	Surface +3350'	Surface 3354'	Surface 3354'
Permian			
Guadalupian			
Taloga			448' +2918'
Day Creek			644' +2722'
Whitehorse			688' +2678'
Leonardian			
Nippewalla Gr.			
Blaine	1060' +2296'	1077' +2289'	1063' +2303'
Cedar Hill	1196' +2169'	1148' +2218'	1176' +2190'
Salt Plain	1326' +2039'	1314' +2052'	1322' +2044'
Sumner Gr.			
Stone Corral	1568' +1797'	1570' +1795'	1560' +1806'
Ninnescah	1590' +1775'	1592' +1774'	1596' +1770'
Wellington	1938' +1427'	1938' +1420'	1932' +1434'
Wolfcampian			
Chase Gr.			
Herington	2212' +1153'	2212' +1154'	2212' +1154'
Krider	2240' +1125'	2240' +1125'	2242' +1124'
Winfield	2300' +1065'	2304' +1062'	2306' +1060'
Towanda	2382' +983'	2385' +981'	2384' +982'
Fort Riley	2430' +935'	2431' +935'	2435' +931'
Wreford	2516' +849'	2521' +845'	2518' +848'
Council Grove Gr.	2558' +807'	2563' +803'	2566' +800'
Admire Gr.	2850' +515'	2867' +499'	2860' +506'
Pennsylvanian			
Virgilian			
Wabaunsee Gr.	2964' +401'	2973' +393'	2976' +390'
Shawnee Gr.			
Topeka	3272' +93'	3289' +79'	3288' +78'
Douglas Gr.			
Heebner	3658' -293'	3686' -320'	3674' -308'
Toronto	3673' -308'	3697' -331'	3691' -325'
Missourian			
Lansing-Kansas City Gr.	3765' -400'	3787' -421'	3788' -422'
Desmoinesian			
Marmaton Gr.	4350' -984'	4352' -986'	4346' -980'
Cherokee Gr.			
Atokian			
Morrowian	5070' -1705'	5067' -1701'	5068' -1702'
Mississippian			
Meramecian			
St. Genevieve	5558' -2193'	5584' -2218'	5604' -2238'
Total Depth	5784 -2419'	5900' -2534'	5896' -2530'

STATE OF MISSOURI
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- 3622 - 3634 Limestone (80%), light grayish tan, gray, mudstone, wackestone. Shale (20%), gray, very dark brown, black.
- 3634 - 3644 Limestone (90%), light grayish tan, gray, mudstone, wackestone. Shale (10%), gray, very dark brown, black. Sample 35% red shale cavings.
- HEEBNER 3658' -320'
- 3644 - 3678 Limestone (90%), light grayish tan, tan, gray, wackestone, packstone, mudstone. Shale (10%), gray, very dark brown, black. Mud gas - 12 Units @ 3665', 15 Units @ 3669'.
- 3678 - 3686 Limestone (75%), light gray, tan, mudstone, wackestone. Shale (25%), gray, black. Sample is 50% red shale cavings.
- TORONTO 3697' -331'
- 3686 - 3718 Limestone (30%), light gray, tan, mudstone, wackestone. Limestone (50%), tan oolitic packstone with good oomoldic porosity. Shale (20%), gray, grayish green, very dark brown. Sample is 50% red shale cavings. Circulated sample.
- 3718 - 3725 Limestone (65%), light gray, tan, mudstone, wackestone. Limestone (20%), tan oolitic packstone with good oomoldic porosity. Shale (15%), gray, grayish green, very dark brown.
- 3725 - 3742 Limestone (85%), light gray, tan, mudstone, wackestone. Shale (15%), gray, grayish green, very dark brown.
- 3742 - 3752 Limestone (80%), buff, wackestone, mudstone. Shale (10%), gray, grayish green, very dark brown. Dolomite (10%), white, gray, crystalline, fine crystalline. Chert (trace), white, gray.
- 3752 - 3770 Dolomite (70%), gray, white, crystalline, fine crystalline. Shale (20%), gray, black. Limestone (10%), buff, light gray, wackestone, mudstone. Chert (trace), white, gray.
- 3770 - 3784 Dolomite (50%), gray, light gray, white, crystalline, fine crystalline. Shale (30%), gray, black. Limestone (20%), light gray, tan, mudstone, wackestone.
- LANSING 3787' -421'
- 3784 - 3800 Limestone (60%), light gray, tan, mudstone, wackestone. Dolomite (15%), gray, light gray, crystalline, fine crystalline. Shale (25%), gray, black.
- 3800 - 3808 Limestone (65%), light gray, tan, buff, mudstone, wackestone. Dolomite (10%), gray, light gray, crystalline, fine crystalline. Shale (25%), black, gray.

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- 4980 - 4984 Limestone (50%), tan, light gray. Shale (35%), black, gray, very dark brown. Limestone (15%), dark brown mudstone.
- 4984 - 4990 Limestone (60%), tan, light gray, mudstone, wackestone. Limestone (10%), dark brown, mudstone. Shale (30%), black, gray, very dark brown.
- 4990 - 4998 Limestone (60%), tan, light gray, mudstone, wackestone. Limestone (10%), very dark brown, mudstone. Shale (30%), black, gray, very dark brown.
- 4998 - 5006 Shale (65%), black, very dark brown, gray. Limestone (25%), very dark brown, mudstone. Limestone (10%), gray, tan, light gray, mudstone, wackestone.
- 5006 - 5018 Shale (60%), black, very dark brown, gray. Limestone (10%), very dark brown, mudstone. Limestone (30%), light gray, tan, gray, mudstone, wackestone.
- 5018 - 5032 Limestone (65%), gray, light gray, tan, mudstone, wackestone. Limestone (15%), dark brown, mudstone. Shale (20%), black, very dark brown, gray.
- 5032 - 5038 Shale (65%), black, gray, very dark brown. Limestone (20%), dark brown, mudstone. Limestone (15%), gray, light gray, tan, mudstone, wackestone.
- 5038 - 5054 Limestone (45%), gray, light gray, tan, mudstone, wackestone. Shale (40%), black, gray, very dark brown. Limestone (15%), dark brown, mudstone.
- MORROW 5067' -1701'
- 5054 - 5074 Shale (35%), black, gray, very dark brown. Shale (10%), greenish gray. Limestone (15%), dark brown, mudstone. Limestone (40%), tan, light brown, gray, tan, mudstone, wackestone, fossiliferous. Sandstone (trace), light gray, very fine grained, calcareous, glauconitic.
- 5074 - 5084 Shale (70%), black, grayish green, gray, very dark brown. Limestone (20%), light brown, light gray, wackestone, with some mudstone and packstone, fossiliferous. Sandstone (trace), gray, very fine grained, siliceous. Pyrite (trace).
- 5084 - 5093 Shale (60%), black, grayish green, gray, very dark brown. Limestone (40%), light brown, light gray, wackestone, with some mudstone and packstone, fossiliferous. Pyrite (trace).
- 5093 - 5105 Shale (80%), gray, black, very dark brown. Limestone (20%), brown, grayish brown, mudstone, wackestone. Bentonite (trace), light gray, Pyrite (trace).

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- 5105 - 5118 Shale (70%), gray, black, very dark brown, trace light gray, bentonite Limestone (10%), gray, brown, tan, mudstone, wackestone. Sandstone (20%), gray, very fine grained, siliceous. Pyrite (trace). Mud gas - 20 Units @ 5108'-5115'.
- 5118 - 5130 Shale (70%), gray, black, very dark brown, trace black coaly shale. Limestone (30%), gray, brown, tan, mudstone, wackestone. Pyrite (trace). Mud gas - 25 Units @ 5122'.
- 5130 - 5135 Shale (90%), gray, black, very dark brown. Limestone (10%), buff, tan, light gray, wackestone, mudstone. Pyrite (trace).
- 5135 - 5141 Limestone (65%), tan, gray, wackestone, packstone. Shale (35%), black, gray, very dark brown. Pyrite (trace).
- 5141 - 5150 Shale (85%), black, gray, very dark brown. Limestone (15%), gray, brown, wackestone, mudstone. Pyrite (trace).
- 5150 - 5160 Shale (95%), black, gray, light gray. Limestone (5%), brown, mudstone, wackestone. Pyrite (trace).
- 5160 - 5168 Shale (95%), black, gray, light gray. Limestone (5%), brown, gray, mudstone, wackestone. Pyrite (trace).
- 5168 - 5178 Shale (95%), black, gray, light gray. Limestone (5%), brown, gray, mudstone, wackestone. Pyrite (trace).
- 5178 - 5192 Shale (90%), black, gray, light gray. Limestone (5%), brown, gray, mudstone, wackestone. Sandstone (5%), light gray, fine grained, siliceous.
- 5192 - 5208 Sandstone (85%), white, light gray, fine grained, chloritic, galuconitic, siliceous. Shale (15%), black, gray, light gray. Mud gas - 47 Units @ 5194'-5206'.
- 5208 - 5218 Shale (85%), black, gray, light gray. Sandstone (15%), white, light gray, fine grained, chloritic, glauconitic. Pyrite (trace). Mud gas - 15 Units @ 5254'.
- 5218 - 5225 Shale (95%), black, gray, light gray. Sandstone (trace), white, light gray, fine grained, chloritic, glauconitic, siliceous. Limestone (5%) brown, mudstone. Pyrite (trace). Mud gas - 12 Units @ 5222'.
- 5225 - 5233 Shale (80%), black, gray, light gray, trace black coaly shale. Limestone (20%), brown, mudstone, wackestone, sandy, glauconitic. Sandstone (trace), light gray, white, fine grained, chloritic, **RELEASED** galuconitic.
- 5233 - 5243 Shale (90%), black, gray, light gray. Limestone (10%), brown, mudstone, wackestone. Sandstone (trace), light gray, white, fine grained.

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- 5243 - 5255 Shale (90%), black, gray, light gray. Limestone (10%), brown, tan, wackestone, mudstone, glauconitic, sandy. Pyrite (trace).
- 5255 - 5268 Shale (95%), black, gray, light gray. Sandstone (5%), gray, white, granules, very coarse grained, fine grained, pyritic, calcareous. Limestone (trace), brown, mudstone.
- 5268 - 5278 Shale (95%), black, gray, light gray. Sandstone (5%), gray, white, granule, coarse grained, fine grained, pyritic, calcareous. Limestone (trace), brown, mudstone.
- 5278 - 5280 Shale (100%), black, gray, light gray. Sandstone (trace), gray, white, granule, very coarse grained, fine grained, pyritic, calcareous. Limestone (trace), brown, mudstone, wackestone.

DST No. 1 5038' - 5280' Atoka-Morrow
30-60-60-120

I.O. Weak blow building to fair blow.
F.O. Weak blow building to fair blow.

Rec: 180' Drilling Mud.

Pressures:

H.P. 2338-2324 psi
F.P. 159-255:212-255 psi
S.I.P. 319-419 psi
B.H.T. 132° F

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Sampler: 2250 cc Drilling Mud.

- 5280 - 5283 Shale (50%), black, gray. Limestone (25%), light gray, white, wackestone, very sandy, fine grained-granules. Sandstone (25%), light gray, white, fine grained, coarse grained, granule, calcareous, glauconitic, chloritic.
- 5283 - 5283 Shale (50%), gray, black, light gray. Limestone (40%), gray, white, coarse grained packstone, very sandy, fine grained, coarse grained, granule. Sandstone (10%), gray, fine grained, coarse grained, granule, calcareous, glauconitic, chloritic. Pyrite (trace).
- 5283 - 5289 Shale (70%), gray, black, light gray. Limestone (30%), gray, white, coarse grained packstone, glauconitic, very sandy, fine grained, coarse grained, granule.
- 5289 - 5302 Shale (100%), gray, black, light gray. Limestone (trace), gray, white, coarse grained packstone, very sandy, fine grained, coarse grained, granule. Pyrite (trace).
- 5302 - 5306 Shale (100%), gray, black, light gray. Limestone (trace), gray, coarse grained packstone, sandy, fine grained, coarse grained, granule.

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CC - [unclear] [unclear]
[unclear]

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- 5306 - 5320 Shale (100%), gray, black, light gray. Limestone (trace), gray, coarse grained packstone, sandy, fine grained, coarse grained, granule
- 5320 - 5331 Shale (100%), gray, black, light gray. Limestone (trace), gray, coarse grained packstone, sandy, fine grained, coarse grained, granule
- 5331 - 5344 Shale (100%), gray, black, light gray. Limestone (trace), gray, coarse grained packstone, sandy, fine grained, coarse grained, granule. Pyrite (trace).
- 5344 - 5354 Shale (100%), gray, black, light gray. Limestone (trace), gray, coarse grained packstone, sandy, fine grained, coarse grained, granule. Pyrite (trace).
- 5354 - 5370 Shale (50%), black gray, light gray. Limestone (50%), gray, coarse grained fossiliferous sandy packstone. Sand is coarse grained to granules, glauconitic. Pyrite (trace).
- 5370 - 5382 Shale (65%), black, gray, light gray. Limestone (35%), gray, coarse grained fossiliferous sandy packstone. Sand is coarse grains to granules. Pyrite (trace).
- 5382 - 5387 Shale (90%), black, gray, light gray. Limestone (10%), gray, coarse grained, fossiliferous, chloritic, glauconitic, sandy packstone. Sand is medium grains to granules.
- 5387 - 5392 Limestone (65%), gray, coarse grained fossiliferous, chloritic, glauconitic, very sandy packstone. Sand is medium grains to granules. Shale (35%), black, gray, light gray.
- 5392 - 5396 Sandstone (40%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Shale (20%), black, gray, light gray. Limestone (40%), gray, light gray, coarse grained very sandy packstone. Sand is fine grained to granules.
- 5396 - 5415 Sandstone (80%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Shale (20%), black, gray, light gray.
- 5415 - 5437 Sandstone (75%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Shale (25%), black, gray, light gray.
- 5437 - 5443 Shale (80%), black, gray, light gray. Sandstone (5%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Limestone, (15%), dark gray, mudstone, wackestone.
- 5443 - 5451 Shale (60%), black, gray, light gray. Limestone (25%), gray, light gray, coarse grained, chloritic, glauconitic, very sandy packstone. Sandstone (15%), gray, fine grained, granule, glauconitic, chloritic, calcareous.
- 5451 - 5454 Shale (85%), black, gray, light gray. Sandstone (10%), gray, fine grained, granule, glauconitic, chloritic, very calcareous. Limestone (5%), gray, coarse grained, glauconitic, chloritic, sandy, packstone.

STATE OF CALIFORNIA
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CONSERVATION DIVISION

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- 5454 - 5461 Shale (85%), black, gray, light gray. Sandstone (10%), gray, fine grained, granule, glauconitic, chloritic, very calcareous. Limestone (5%), gray, coarse grained, glauconitic, chloritic, very sandy, packstone. Mud gas - 7 Units @ 5459'.
- 5461 - 5469 Shale (65%), black gray, light gray. Sandstone (35%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Limestone (trace), gray, coarse grained, glauconitic, chloritic, very sandy, packstone. Mud gas - 10 Units @ 5456'.
- 5469 - 5476 Sandstone (75%), gray, light gray, fine grained, granule, glauconitic, chloritic, very calcareous. Shale (25%), black gray, light gray. Circulate samples at 5476'. Mud gas - 30 Units @ 5476'.
- 5476 - 5480 Sandstone (80%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Shale (20%), black, gray, light gray.
- 5480 - 5489 Shale (70%), gray, black, light gray. Sandstone (30%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous.
- 5489 - 5505 Shale (70%), gray, black, light gray. Sandstone (30%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous.
- 5505 - 5511 Shale (70%), gray, black, light gray. Sandstone (30%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Mud gas - 10 Units @ 5508'.
- 5511- 5518 Shale (80%), gray, black, light gray. Sandstone (20%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous.

DST No. 2 5465' - 5518' Morrow
30-60-60-120

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I.O. Strong blow, gas to surface in 7 minutes.
F.O. Strong blow, gas at 617 MCF/D maximum.

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Rec: 140' Gas Cut Drilling Mud.

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I	Time	Orifice Press.	Choke	Rate
N F	7 Min	-	3/4"	Gas To Surface
T L	10 Min	15 psi	3/4"	331 MCF/D
I O	20 Min	24 psi	3/4"	449 MCF/D
A W	30 Min	30 psi	3/4"	522 MCF/D
L				
F F	40 Min	32 psi	3/4"	546 MCF/D
I L	50 Min	33 psi	3/4"	558 MCF/D
N O	60 Min	35 psi	3/4"	581 MCF/D
A W	70 Min	36 psi	3/4"	594 MCF/D
80 Min	80 Min	36 psi	3/4"	594 MCF/D
90 Min	90 Min	38 psi	3/4"	617 MCF/D

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CC: [unclear]
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Pressures:

H.P. 2548-2531
F.P. 234-288:206-202 psi
S.I.P. 1426-1426 psi
B.H.T. 140 ° F

Sampler: 1.3 cu. ft. Gas @ 275 psi. No Fluid.

- 5518 - 5523 Shale (95%), gray, black, light gray. Sandstone (5%), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous. Pyrite (trace).
- 5523 - 5531 Shale (100%), gray, black, light gray. Sandstone (trace), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous.
- 5531 - 5539 Shale (100%), gray, black, light gray. Sandstone (trace), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous.
- 5539 - 5551 Shale (100%), gray, black, light gray. Sandstone (trace), gray, light gray, fine grained, granule, glauconitic, chloritic, calcareous.
- 5551 - 5568 Shale (60%), gray, black, light gray. Shale (10%), red, purple, light gray-red mottled. Sandstone (20%), gray, white, granule, medium grained, calcareous. Starting interval of Mississippian Unconformity. Mud gas - 10 Units @ 5564'.
- 5568 - 5583 Shale (60%), gray, black, light gray. Shale (30%), red, light gray, purple. Sandstone (10%), white, granule, medium grained, calcareous. Mud gas - 7 Units @ 5574'.
- Ste. GENEVIEVE 5584' -2218'
- 5583 - 5595 Shale (55%), gray, black, light gray. Shale (45%), red, maroon, gray. Sandstone (trace), gray, white, coarse grained, granule, calcareous. Limestone (trace), white, fine grained packstone, sandstone texture and red hematitic stain.
- 5595 - 5607 Shale (40%), black, gray, light gray. Shale (30%), red, purple, light brown. Limestone (30%), red, fine grained packstone, sandstone texture. Red color due to hematitic staining.
- 5607 - 5615 Limestone (40%), red, fine grained packstone, sandstone texture, hematitic stained. Shale (20%), red, reddish brown. Shale (40%), black, gray, light gray. Black shale is probably cavings. Mud gas - 35 Units @ 5612'.
- 5615 - 5621 Shale (40%), red, dark reddish brown. Limestone (20%), red, fine grained packstone, sandstone texture, hematitic stain. Shale (40%), gray, black, light gray. Black shale is probably cavings.
- 5621 - 5631 Limestone (70%), red, buff, fine grained packstone, sandstone texture. Shale (30%), red, reddish brown. Sample is 30% black shale cavings.

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- 5631 - 5640 Limestone (90%), red, light brown, buff, fine grained packstone, sandstone texture, hematitic stain. Shale (10%), red, dark reddish brown. Sample is 60% black shale cavings.
- 5640 - 5650 Limestone (100%), red, light brown, buff, fine grained packstone, sandstone texture, hematitic stain. Shale (trace), red. Sample is 55% black shale cavings.
- 5650 - 5660 Limestone (100%), red, light brown, buff, fine grained packstone, sandstone texture, hematitic stain. Shale (trace), red. Sample is 60% black shale cavings.
- 5660 - 5672 Limestone (100%), red, light brown, buff, fine grained packstone, sandstone texture, hematitic stain. Shale (trace), red. Sample is 70% black shale cavings. Mud gas - 10 Units @ 5675'.
- 5672 - 5683 Limestone (100%), buff, light brown, fine-medium grained packstone, sandstone texture. Sample is 80% black shale cavings.
- 5683 - 5692 Limestone (100%), light gray, buff, fine-medium grained packstone, sandstone texture. Sample is 70% black shale cavings.
- 5692 - 5702 Limestone (100%), light gray, buff, fine-medium grained packstone, sandstone texture. Sample is 50% black shale cavings. Mud gas - 10 Units @ 5690'-5700'.
- 5702 - 5713 Limestone (100%), light gray, buff, fine-medium grained packstone, sandstone texture. Sample is 35% black shale cavings.
- 5713 - 5723 Limestone (100%), light gray, buff, fine-medium grained packstone, sandstone texture. Sample is 20% black shale cavings.
- 5723 - 5733 Limestone (100%), light gray, buff, tan, fine-coarse grained packstone. Sample is 15% black shale cavings.
- 5733 - 5742 Limestone (100%), light gray, buff, fine-coarse grained packstone. Sample is 15% black shale cavings.
- 5742 - 5750 Limestone (100%), light gray, buff, fine-coarse grained packstone. Sample is 85% black shale cavings.
- 5750 - 5760 Limestone (70%), light gray, buff, fine-coarse grained packstone. Limestone (30%), white coarse grained oolitic packstone. Sample is 30% black shale cavings.
- 5760 - 5770 Limestone (60%), tan, light gray, coarse grained packstone. Limestone (40%), white, coarse grained oolitic packstone. Sample is 90% black shale cavings.
- 5770 - 5779 Limestone (80%), tan, light gray, coarse grained packstone. Limestone (20%), white, coarse grained packstone and oolitic packstone. Trace Malachite. Sample is 70% black shale cavings.

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- 5779 - 5790 Limestone (100%), buff, white, packstone, oolitic packstone. Chert (trace), white. Trace Malachite. Sample is 50% black shale cavings. Cuttings are very small in size.
- 5790 - 5804 Limestone (100%), buff, white, packstone. Chert (trace), white. Sample is 85% black shale cavings. Cuttings are very small in size.
- 5804 - 5813 Limestone (100%), buff, white, packstone. Sample is 95% black shale cavings. Cuttings are very small in size.
- 5813 - 5821 Limestone (100%), buff, white, packstone. Chert (trace), white. Sample is 95% black shale cavings. Cuttings are very small in size.
- 5821 - 5831 Limestone (100%), buff, white, packstone. Chert (trace), white. Sample is 95% black shale cavings. Cuttings are very small in size. Mud gas - 5 Units @ 5831'.
- 5831 - 5840 Limestone (100%), tan, buff, coarse grained, packstone. Sample is 70% black, red and green shale cavings.
- 5840 - 5853 Limestone (100%), tan, buff, coarse grained packstone. Sample is 65% black, red and green shale cavings. Cuttings are very small in size.
- 5853 - 5864 Limestone (100%), tan, buff, medium-coarse grained packstone. Sample is 70% black, red and green shale cavings.
- 5864 - 5871 Limestone (100%), tan, buff, medium-coarse grained packstone. Sample is 70% black and red shale cavings.
- 5871 - 5884 Limestone (100%), tan, buff, medium-coarse grained packstone. Trace Malachite. Sample is 60% black and red shale cavings.
- 5884 - 5891 Limestone (100%), tan, buff, medium-coarse grained packstone. Sample is 75% black and red shale cavings.
- 5891 - 5897 Limestone (100%), tan, buff, medium-coarse grained packstone. Sample is 90% black shale cavings. Cuttings are very small in size. Mud gas - 12 Units @ 5896'.
- 5897 - 5900 Limestone (100%), tan, buff, medium-coarse grained packstone. Sample is 90% black shale cavings. Cuttings are very small in size.

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Total Depth Driller 5900 Feet.
Total Depth Logger 5896 Feet.

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