

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

Operator: License # 32119

Name: Northern Natural Gas

Address P.O. Box 178

City/State/Zip Cunningham, KS 67035

Purchaser: N/A

Operator Contact Person: Dan Dobbins

Phone (316) 298-6117

Contractor: Name: Pratt Well Service

License: 5893

Wellsite Geologist: None

Designate Type of Completion
 New Well Re-Entry Workover

Oil SWD SLOW Temp. Abd.
 Gas ENHR SIGW
 Dry Other (Core, WSW, Expl., Cathodic, etc)

If Workover:

Operator: Northern Natural Gas

Well Name: Prentice 30-21

Comp. Date 4-9-78 Old Total Depth 4453

Deepening Re-perf. Conv. to Inj/SWD
 Plug Back PBDT
 Commingled Docket No. _____
 Dual Completion Docket No. _____
 Other (SWD or Inj?) Docket No. _____

8-25-98 9-26-98 9-29-98
Spud Date Date Reached TD Completion Date

API NO. 15- 095-206930101

County Kingman

SE - NW - NE - SW Sec. 30 Twp. 27S Rge. 10 X W

1227 Feet from S (circle one) Line of Section

1761 Feet from E (circle one) Line of Section

Footages Calculated from Nearest Outside Section Corner:
NE SE, NW or SW (circle one)

Lease Name Prentice Well # 30-21

Field Name Cunningham

Producing Formation Viola

Elevation: Ground 1668 KB 1678

Total Depth 5975 3986 TVD PBDT 5975 3986 TVD

Amount of Surface Pipe Set and Cemented at 1450 Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set _____ Feet

Alternate II completion, cement circulated from _____

feet depth to _____ w/ _____ sx cmt.

Drilling Fluid Management Plan OWWO 12-4-98 JK
(Data must be collected from the Reserve Pit)

Chloride content 800 ppm Fluid volume 400 bbls

Dewatering method used N/A

Location of fluid disposal if hauled offsite:

Operator Name Geary Mud Disposal

Lease Name Gray License No. 284168

Quarter Sec. 15 Twp. 14N Rng. 7 W

County Garfield, OK Docket No. 284168

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 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 geologist well report 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.

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 Don Dobbins

Title Sr. Reservoir Analyst Date 11-18-98

Subscribed and sworn to before me this 18th day of November, 1998.

Notary Public Karen Elliot

Date Commission Expires January 23, 1999

NOTARY PUBLIC - State of Kansas
KAREN ELLIOT
My Appt. Exp. 1-23-99

K.C.C. OFFICE USE ONLY
F Letter of Confidentiality Attached
C Wireline Log Received
G Geologist Report Received
Distribution
 KCC SWD/Rep NGPA
 KGS Plug Other
(Specify)

Operator Name Northern Natural Gas Lease Name Prentice Well # 30-21
 Sec. 30 Twp. 27S Rge. 10 East West
 County Kingman

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.)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Electric Log Run (Submit Copy.)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
List All E.Logs Run:				

CASING RECORD <input checked="" type="checkbox"/> New <input type="checkbox"/> 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 Percent Additives
Conductor	20"	13 3/8"	54	66	Common	100	-----
Surface	12 1/4"	8 5/8"	22	1450	50-50 Poz	800	2% Gel 3% CC
Production	7 7/8"	5 1/2"	15.5	4474	50-50- Poz	30	2% Gel 18% Salt 4# Gilsonite

ADDITIONAL CEMENTING/SQUEEZE RECORD				
Purpose: Set Liner	Depth Top Bottom	Type of Cement	#Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone	4062-4514	Standard	25	-----

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type	Acid, Fracture, Shot, Cement Squeeze Record
	Specify Footage of Each Interval Perforated	(Amount and Kind of Material Used) Depth

TUBING RECORD		Size	Set At	Packer At	Liner Run
					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Date of First, Resumed Production, SWD or Inj. Storage Well			Producing Method <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain)		
Estimated Production Per 24 Hours	N/A	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio Gravity

Disposition of Gas: **METHOD OF COMPLETION** **Production Interval**

Vented Sold Used on Lease Open Hole Perf. Dually Comp. Commingled _____

(If vented, submit ACO-18.) Other (Specify) _____



Job Number: P98-228
 Company: Netherland, Sewell & Associates, Inc.
 Lease/Well: 30-21 Prentice
 Location: Cunningham Gas Storage Field
 Rig Name: Pratt Well Services
 RKB: Unknown
 G.L. or M.S.L.: Unknown

State/Country: Kingman/Pratt Counties, Kansas
 Declination: 6.56°E (est.)
 Grid: Assume True
 File name: G:\98PROP-1\98220\SV98228\98228.SVY
 Date/Time: 25-Nov-98 / 11:00
 Curve Name: Diamondback Surveys

Phoenix Drilling Services, Inc.

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 270.04
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

RECEIVED
 KANSAS CORP. CO.
 NOV 23 1998 3 11:39

ORIGINAL

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
Tie In Point									
4108.00	33.25	254.00	3751.36	-624.56	-1387.80	1387.36	1521.86	245.77	.00
4187.00	37.90	253.00	3815.60	-637.63	-1431.85	1431.40	1567.41	246.00	5.93
4218.00	45.80	251.20	3838.67	-644.01	-1451.50	1451.05	1587.96	246.07	25.77
4249.00	52.20	254.40	3859.00	-650.89	-1473.85	1473.39	1611.17	246.17	22.06
4281.00	57.30	261.50	3877.48	-656.29	-1499.38	1498.92	1636.72	246.36	24.12
4312.00	62.70	267.00	3892.98	-658.94	-1526.07	1525.61	1662.25	246.65	23.22
4342.00	66.90	272.50	3905.76	-659.04	-1553.19	1552.73	1687.23	247.01	21.70
4373.00	70.20	279.70	3917.11	-655.95	-1581.85	1581.39	1712.46	247.48	24.09
4404.00	72.80	285.90	3926.95	-649.43	-1610.50	1610.04	1736.51	248.04	20.74
4436.00	71.80	285.80	3936.68	-641.11	-1639.82	1639.37	1760.69	248.65	3.14

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S		E-W		Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
				FT	FT	FT	FT		Distance FT	Direction Deg	
4467.00	73.50	288.80	3945.93	-632.30	-1668.07	1667.63	1783.89	249.24	10.74		
4499.00	79.20	291.90	3953.48	-621.49	-1697.20	1696.77	1807.41	249.89	20.14		
4530.00	87.20	295.00	3957.15	-609.24	-1725.41	1724.99	1829.82	250.55	27.65		
4561.00	92.80	295.20	3957.15	-596.10	-1753.48	1753.06	1852.03	251.22	18.08		
4593.00	91.40	295.80	3955.98	-582.33	-1782.34	1781.93	1875.06	251.91	4.76		
4624.00	87.90	295.40	3956.16	-568.94	-1810.29	1809.89	1897.59	252.55	11.36		
4655.00	87.60	295.60	3957.38	-555.60	-1838.25	1837.86	1920.38	253.18	1.16		
4687.00	87.30	295.40	3958.81	-541.84	-1867.10	1866.72	1944.13	253.82	1.13		
4718.00	87.30	295.30	3960.27	-528.58	-1895.09	1894.72	1967.42	254.42	.32		
4749.00	86.70	294.20	3961.89	-515.62	-1923.20	1922.84	1991.12	254.99	4.04		
4780.00	86.50	294.20	3963.73	-502.94	-1951.43	1951.07	2015.19	255.55	.65		
4812.00	85.90	294.40	3965.85	-489.80	-1980.53	1980.18	2040.19	256.11	1.98		
4843.00	87.30	294.50	3967.69	-476.99	-2008.70	2008.36	2064.55	256.64	4.53		
4875.00	89.60	294.90	3968.55	-463.62	-2037.75	2037.43	2089.83	257.18	7.30		
4906.00	88.90	294.40	3968.96	-450.70	-2065.93	2065.61	2114.52	257.69	2.77		
4937.00	89.20	293.70	3969.47	-438.06	-2094.23	2093.93	2139.56	258.19	2.46		
4969.00	89.10	293.80	3969.95	-425.18	-2123.52	2123.22	2165.67	258.68	.44		
5000.00	88.80	293.20	3970.51	-412.82	-2151.94	2151.65	2191.18	259.14	2.16		
5032.00	89.70	292.80	3970.93	-400.32	-2181.40	2181.12	2217.82	259.60	3.08		
5063.00	89.70	293.60	3971.10	-388.10	-2209.89	2209.62	2243.71	260.04	2.58		
5095.00	89.70	293.90	3971.26	-375.22	-2239.18	2238.92	2270.40	260.49	.94		
5126.00	89.30	293.50	3971.53	-362.76	-2267.56	2267.31	2296.40	260.91	1.82		
5157.00	87.60	295.40	3972.37	-349.93	-2295.77	2295.53	2322.29	261.33	8.22		
5189.00	88.20	295.10	3973.54	-336.29	-2324.69	2324.46	2348.89	261.77	2.10		
5220.00	87.70	296.10	3974.65	-322.90	-2352.63	2352.41	2374.69	262.18	3.60		
5252.00	88.00	297.60	3975.85	-308.46	-2381.16	2380.94	2401.06	262.62	4.78		
5283.00	89.40	298.00	3976.56	-294.01	-2408.57	2408.37	2426.45	263.04	4.70		
5314.00	89.00	297.20	3976.99	-279.65	-2436.04	2435.85	2452.04	263.45	2.88		
5345.00	89.50	296.50	3977.40	-265.65	-2463.70	2463.51	2477.98	263.85	2.77		
5376.00	88.20	297.40	3978.02	-251.60	-2491.33	2491.15	2504.00	264.23	5.10		
5408.00	86.90	297.90	3979.39	-236.76	-2519.65	2519.48	2530.75	264.63	4.35		
5440.00	86.80	297.60	3981.14	-221.89	-2547.92	2547.77	2557.57	265.02	.99		

ORIGINAL

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S		E-W		Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
				FT	FT	FT	FT		Distance FT	Direction Deg	
5471.00	86.10	297.70	3983.06	-207.53	-2575.33	2575.18	2583.68	265.39	2.28		
5503.00	86.60	296.60	3985.10	-192.96	-2603.74	2603.61	2610.88	265.76	3.77		
5534.00	87.50	295.50	3986.70	-179.36	-2631.56	2631.43	2637.66	266.10	4.58		
5566.00	88.20	295.80	3987.90	-165.52	-2660.38	2660.27	2665.53	266.44	2.38		
5596.00	88.50	296.10	3988.76	-152.40	-2687.35	2687.24	2691.67	266.75	1.41		
5628.00	92.40	295.40	3988.51	-138.50	-2716.16	2716.07	2719.69	267.08	12.38		
5659.00	90.50	294.90	3987.73	-125.33	-2744.21	2744.13	2747.08	267.39	6.34		
5690.00	90.80	294.90	3987.37	-112.28	-2772.33	2772.25	2774.60	267.68	.97		
5721.00	91.10	294.50	3986.86	-99.33	-2800.49	2800.42	2802.25	267.97	1.61		
5753.00	91.10	294.20	3986.25	-86.13	-2829.64	2829.58	2830.95	268.26	.94		
5784.00	89.60	294.30	3986.06	-73.40	-2857.90	2857.85	2858.84	268.53	4.85		
5816.00	90.90	294.20	3985.92	-60.26	-2887.08	2887.04	2887.71	268.80	4.07		
5847.00	90.90	293.70	3985.43	-47.68	-2915.41	2915.37	2915.79	269.06	1.61		
5878.00	88.90	292.80	3985.48	-35.44	-2943.89	2943.86	2944.10	269.31	7.07		
5909.00	90.30	291.80	3985.70	-23.68	-2972.57	2972.55	2972.66	269.54	5.55		
5940.00	90.10	290.60	3985.59	-12.47	-3001.47	3001.46	3001.49	269.76	3.92		
Projected Survey to TD											
5975.00	89.90	289.20	3985.59	-.56	-3034.38	3034.38	3034.38	269.99	4.04		

ORIGINAL