

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

API NO. 15- 151 20468-0001

ORIGINAL

County Pratt

Operator: License # 32119

SW - SE - NW - NE Sec. 25 Twp. 27S Rge. 11 X W

Name: Northern Natural Gas

1160 feet from S (circle one) Line of Section

Address P.O. Box 178

1840 feet from E/W (circle one) Line of Section

City/State/Zip Cunningham, KS 67035

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

Purchaser: Storage Well

Lease Name McClellan Well # 25-21

Operator Contact Person: Dan Dobbins

Field Name Cunningham

Phone (316) 257-5146

Producing Formation Viola/Simpson

Contractor: Name: Pratt Well Service **RECEIVED**

Elevation: Ground 1700 KB 1709

License: 5893

Total Depth 4165 PBTD 4162

Wellsite Geologist: None

Amount of Surface Pipe Set and Cemented at 1424 Feet

Designate Type of Completion

Multiple Stage Cementing Collar Used? Yes X No

New Well Re-Entry Workover

If yes, show depth set _____ Feet

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

If Alternate II completion, cement circulated from _____

If Workover: INJECTION - SIMPSON
INJECTION - VIOLA

foot depth to _____ w/ _____ sx cmt.

Operator: Northern Natural Gas

Drilling Fluid Management Plan REWORK OK 9-30-97
(Data must be collected from the Reserve Pft)

Well Name: McClellan 25-21

Chloride content 14,000 ppm Fluid volume 220 bbls

Comp. Date 4-15-78 Old Total Depth 4075'

Dewatering method used N/A

XXX RAN SHORT LENGTH OF LINER

Location of fluid disposal if hauled offsite: _____

Deepening Re-perf. _____ Conv. to Inj/SWD

Operator Name Geary Mud Disposal

Plug Back _____ PBTD

Lease Name Gray License No. 2284168

Commingled _____ Docket No. _____

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

XXX Dual Completion _____ Docket No. _____

County Garfield, OK Docket No. 284168

Other (SWD or Inj?) _____ Docket No. _____

6-14-97 6-18-97 6-27-97

~~DATE~~ Date OF START OF WORKOVER _____ Date Reached TD _____ Completion Date of WORKOVER _____

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 Dan Dobbins

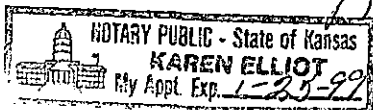
Title Sr. Reservoir Analyst Date 9/16/97

Subscribed and sworn to before me this 16th day of September 19 97.

Notary Public Karen Elliot

Date Commission Expires January 23, 1999

K.C.C. OFFICE USE ONLY		
F	<input checked="" type="checkbox"/>	Letter of Confidentiality Attached
C	<input checked="" type="checkbox"/>	Wireline Log Received
C	<input checked="" type="checkbox"/>	Geologist Report Received
Distribution		
<input checked="" type="checkbox"/>	KCC	<input type="checkbox"/> SWD/Rep <input type="checkbox"/> NGPA
<input type="checkbox"/>	KGS	<input type="checkbox"/> Plug <input type="checkbox"/> Other (Specify)



Operator Name Northwestern Natural Gas Lease Name McClellan Well # 25-21

Sec. 25 Twp. 27S Rge. 11 East West
 County Pratt

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 checked="" 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	Viola	3986	-2277
Electric Log Run (Submit Copy.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Simpson	4095	-2386
List All E.Logs Run:				
Dual Induction Laterlog				
Compensated Density Dual Spaced Neutron Log				
Cement Bond Log				

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 Percent Additives
Conductor	20"	13 3/8	54.5	1005	Common	125	
Surface	12-1/4"	8 5/8	22.3	14424	Reg Poz	650	18% NaCl
Production	7 7/8	5 1/2	15.5	4,102	Reg Poz	850	4% Gel 5# Gil

ADDITIONAL CEMENTING/SQUEEZE RECORD

Purpose: Set Line	Depth Top Bottom	Type of Cement	#Sacks Used	Type and Percent Additives
Perforate				
Protect Casing	4097-4163	Standard	25	5# Gil, 18% NaCl, Flocele, Calseal
Plug Back TD				
Plug Off Zone				

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
4	3992-4032	1000 Gal. 15% HCl	3992
4	4097-4116		

TUBING RECORD	Size	Set At	Packer At	Liner Run
	2 3/8	4068	4035	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Date of First, Resumed Production, SWD or Inj. Storage Well _____ Producing Method Flowing Pumping Gas Lift Other (Explain)

Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Water	Bbls.	Gas-Oil Ratio	Gravity
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Disposition of Gas: Vented Sold Used on Lease (If vented, submit ACO-18.)

METHOD OF COMPLETION: Open Hole Perf. Dually Comp. Commingled

Production Interval: 3992 - 4032
4097 - 4116

ORIGINAL



Natural gas. Electricity.
Endless possibilities.™

September 26, 1997

Jim Hemmen
Kansas Corporation Commission
130 South Market #2078
Wichita, KS 67202-3802

RECEIVED
KANSAS CORP COM
1997 SEP 29 1:52

RE: Schematic for Liners at Cunningham

Please find enclosed a schematic for a typical completion in the Cunningham Storage field on our deepening project. If you need more information please call me at 316-257-5146 or 316-298-5111.

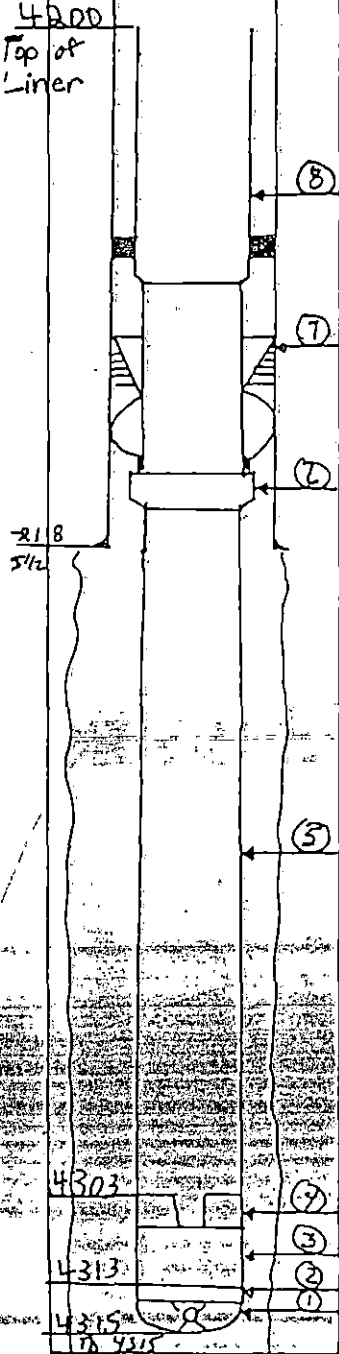
Thanks,

A handwritten signature in cursive script that reads "Dan Dobbins".

Dan Dobbins
Sr. Reservoir Analyst

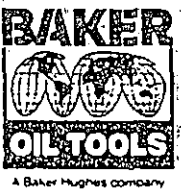
COMPANY Northern Natural Gas Co.	C	NG	LINER	UPPER TUBING	LOWER TUBING
WELL NAME & NUMBER STEFFAN 24-32	SIZE	5 1/2	3 1/2		
FIELD Cunningham Gas Storage	WEIGHT	15.50	9.3#		
COUNTY PRATT	GRADE		J-SS		
STATE KANSAS	THREAD		(S Hydr.)		
DATE 07-12-97	<input type="checkbox"/> NEW <input checked="" type="checkbox"/> W.O.	DEPTH 4218	4		

ITEM	DESCRIPTION	MAX. O.D. INCHES	MIN. I.D. INCHES	LENGTH FEET	DEPTH FEET
1	3 1/2 Halliburton Float Shoe	4.465	3.375	1.16	4315
2	X-over sub	4.250	3"	.37	4313.84
3	3 1/2 9.3# Tubing Sub	3.870	2.925	9.90	4313.47
4	Baker 3 1/2 CS Hydril Landing Collar	3 15/16	2 15/16	.74	4303.57
5	(3) Jts 3 1/2 9.3# CS Hydril Tubing	3.870	2.925	89.54	4252.83
6	X-over sub w/ 3 1/2 CS Hydril Pin	4 1/2	2 15/16	.78	4213.29
7	Baker 3 1/2 by 5 1/2 Hyflo III Hanger	4 1/16	3.50	3.77	4212.51
8	Baker Hyflo III Liner Top Packer w/ 4" 6" setting sleeve	4 1/16 PKRID	4" 3.50	8.72	4208.74
					4200.02
ORIGINAL					



KANSAS RECEIVED
 1997 SEP 29 PM 1:52
 JOHN DRUMM

PREPARED FOR Mr. Art MERRICK	OFFICE OKLA. CITY, OK	PHONE (405) 672-5557
PREPARED BY John Drumm		



6023 NAVIGATION BOULEVARD HOUSTON TEXAS 77011-1131
 P.O. BOX 3048 HOUSTON, TEXAS 77253-3048
 Telephone (713) 923-9351 Telex 76-2833

CUSTOMER COPY

INVOICE



HALLIBURTON ENERGY SERVICES, INC.

REMIT TO:
 P O BOX 951046
 DALLAS, TX 75395-1046
 Corporate FIN 73-0271280

INVOICE NO.	DATE
219311	06/20/199

WELL/LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	LEASE OWNER		
OCCELLAN 25-21	KINGMAN	KS	SAME		
SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE		
PRATT	PRATT WELL SERVICE	SHOWN BELOW	06/20/199		
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	DATE
34280	ART MERRICK		L 4420 7 006	COMPANY TRUCK	2614

RECEIVED
 KANSAS CORPORATION COMMISSION DIRECT CORRESPONDENCE TO:

NORTHERN NATURAL GAS CO
 BOX 126
 CUNNINGHAM, KS 67035

SEP 22 1997

1102 E. 8TH
 HAYS KS 67601
 913-625-3431

CONSERVATION DIVISION
 WICHITA, KS

ORIGINAL

REFERENCE NO.	DESCRIPTION	QUANTITY	UNIT	PRICE	AMOUNT
	RICING AREA - MID-CONTINENT				
	OR PURPOSE - CEMENT PRODUCTION LINE				
000-117	MILEAGE CEMENTING ROUND TRIP	36 MI		3.20	115.20
		1 UNT			
000-119	MILEAGE FOR CREW	36 MI		1.95	70.20
		1 UNT			
009-407	CEMENTING LINERS/SHORT CASING	4154 FT		2.019.00	2,019.00
009-019		1 UNT			
504-308	CEMENT - STANDARD	50 SK		10.83	541.50
508-291	GILSONITE BULK	125 LB		.50	62.50
509-968	SALT	300 LB.		.17	51.00
507-775	HALAD-322	14 LB		7.70	107.80
507-970	U-AIR 1, POWDER	6 LB		3.65	21.90
509-406	ANHYDROUS CALCIUM CHLORIDE	1 SR		46.90	46.90
507-210	FLOCELE	5 LB		1.90	11.40
508-127	CAL SEAL 60	1 SR		28.00	28.00
500-207	BULK SERVICE CHARGE	61 CFT		1.55	94.55
500-306	MILEAGE CMTC HAY OEL OR RETURN	47.43 TMI		1.18	110.00HR
	JOB PURPOSE SUBTOTAL				3,279.95
	INVOICE SUBTOTAL				3,279.95
	DISCOUNT-(BID)				655.99-
	INVOICE BID AMOUNT				2,623.96
	*-KANSAS STATE SALES TAX				125.84
	*-PRATT COUNTY SALES TAX				25.68
	INVOICE TOTAL - PLEASE PAY THIS AMOUNT				\$2,775.48

543828 - SIMPSON PROJECT L.F.

TERMS: If Customer does not have an approved open account with Halliburton, all sums due are payable in cash at the time of performance of services or delivery of equipment, products or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, Customer



JOB LOG 4239-5

REGION North America		NWA/COUNTRY	TICKET #	TICKET DATE
MBU ID / EMP #	EMPLOYEE NAME	PSL DEPARTMENT	BDA / STATE	COUNTY
LOCATION	COMPANY	CUSTOMER REP / PHONE	ORIGINAL	
TICKET AMOUNT	WELL TYPE	API / UWI #		
WELL LOCATION	DEPARTMENT	JOB PURPOSE CODE		
LEASE / WELL #	SEC / TWP / RNG	KANSAS CORPORATION COMMISSION		

RECEIVED

HES EMP NAME/EMP#/(EXPOSURE HOURS) HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS) HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS) HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS) HRS
SEP 22 1997			
CONSERVATION DIVISION WICHITA KS			

CHART NO.	TIME	RATE (BPM)	VOLUME (BBB)(GAL)	PUMPS		PRESS. (psi)		JOB DESCRIPTION / REMARKS
				T	C	Tbg	Csg	
#	0700							Called Out
	1130							On loc w/Trk's Safety mtg
	1430							T.O.H. w/Bit
	1600							T.T.H. w/liner + Liner Hanger
								Break Circ every 10 std's D.P.
								liner on Bottom Circ for 1/2 hr
								prepare Liner In set position
								Rig up Howco
	1727	3	18	✓		600		Pump 12% KCl Preflush
	1738	3	2	✓		500		Fresh H2O Spacer
	1745	3	6.9	✓		400		Mix + pump 255Ks (m + a) 14.7ppg
	1753	5	10					Close In manifold + wash pump + line
	1754	3		✓		200		Release Thg Plug + St Disp w/ H2O
	1758	1 1/4	16	✓		250		16 Bbl's Out Decrease Rate
	1759	1 1/4	2.2	✓		1000		psi Increase for Liner Plug
	1801	1		✓		500		Continue pumping
	1802	2	1.5	✓		300		Shut Down w/ Indication
								of Liner Plug Landing pumped
								1/2 Bbl over Disp
								Total Disp pumped = 19.75 Bbl's