

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

API NO. 15- 095-20690-0001

County Kingman

NE - SE - SE - SE Sec. 19 Twp. 27S Rge. 10 X E

600 Feet from SN (circle one) Line of Section

159 Feet from EW (circle one) Line of Section

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

Lease Name Prentice Well # 19-33

Field Name Cunningham

Producing Formation Viola/Simpson

Elevation: Ground 1683 KB 1693

Total Depth 4090 PBTD 4065

Amount of Surface Pipe Set and Cemented at 1425 Feet

Multiple Stage Cementing Collar Used? X Yes      No

If yes, show depth set 2742 Feet

Alternate II completion, cement circulated from     

feet depth to      w/      SX cmt.

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

Chloride content 14,000 ppm Fluid volume 220 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. 24N S Rng. 7 W E/W

County Garfield, OK Docket No. 284168

Operator: License # 32119

Name: Northern Natural Gas

Address P.O. Box 178

City/State/Zip Cunningham, KS 67035

Purchaser: Storage Well

Operator Contact Person: Dan Dobbins

Phone (316) 257-5146

Contractor: Name: Pratt Well Service

License: 5893

Wellsite Geologist: None

Designate Type of Completion

New Well      Re-Entry      X Workover

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

If Workover:

INJECTION - SIMPSON  
INJECTION - VIOLA

Operator: Northern Natural Gas

Well Name: Prentice 19-33

Comp. Date 4-5-78 Old Total Depth 4010'

XXX RAN SHORT LENGTH OF LINER

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

     Plug Back      PBTD

     Commingled      Docket No.     

XXX Dual Completion      Docket No.     

     Other (SWD or Inj?)      Docket No.     

5-27-97 6-4-97 6-13-97

     Date of START Date Reached TD Completion Date of  
OF WORKOVER OF WORKOVER

RECEIVED  
KANSAS CORPORATION COMMISSION  
9-22-97  
SEP 22 1997  
CONSERVATION DIVISION  
WICHITA, KS

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

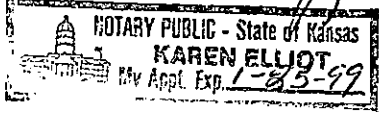
Title Sr. Reservoir Analyst Date 9/16/97

Subscribed and sworn to before me this 12<sup>th</sup> day of September 19 97.

Notary Public Karen Elliot

Date Commission Expires January 25, 1999

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



Operator Name Northern Natural gas Lease Name Prentice Well # 19-33

Sec. 19 Twp. 27 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 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	3932	-2239
Electric Log Run (Submit Copy.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Simpson	4033	-2340
List All E.Logs Run: Cement Bond Log Dual Induction Laterolog Compensated Density Dual Spaced Neutron Log				

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 "	54.5	88	Common	125	-----
Surface	12 1/4"	8 5/8"	22.36	1425	Reg Poz	700	18% NaCL
Production	7 7/8"	5 1/2"	15.5	4030	Reg Poz	800	4% Gel 5#Gi

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	3973-4090	Standard	25	5# Gi., 18% NaCL Flocele, Calseal

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
4	4033 - 4037	1000 gal 15% HCL	3935
4	4042 - 4047		
4	4052 - 4056		
4	3935 - 3975		

TUBING RECORD		Size	Set At	Packer At	Liner Run	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		2 3/8"	4061	4010		
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 checked="" type="checkbox"/> Other (Explain)			
Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Water	Bbls. Gas-Oil Ratio Gravity

Disposition of Gas:  Vented  Sold  Used on Lease (If vented, submit ACO-18.)

METHOD OF COMPLETION  Open Hole  Perf.  Dually Comp.  Commingled  Other (Specify) \_\_\_\_\_

Production Interval 3935 - 3975  
4033 - 4056

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.

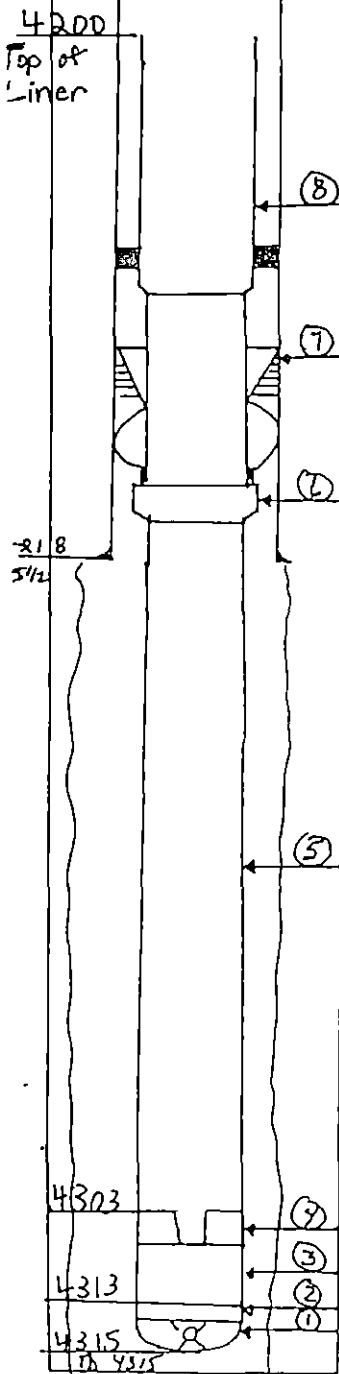
Thanks,

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

Dan Dobbins  
Sr. Reservoir Analyst

COMPANY Northern Natural Gas Co.	CONNG	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 POTT	GRADE	J-55		
STATE KANSAS	THREAD	(S Hydril)		
DATE 07-12-97	<input type="checkbox"/> NEW <input checked="" type="checkbox"/> W.O.	DEPTH 4318	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 (S Hydril) Landing Collar	3 15/16	2 15/16	.74	4303.57
5	(3) Jts 3 1/2 9.3# (S Hydril) Tubing	3.870	2.925	89.54	4252.83
6	X-over sub w/ 3 1/2 (S Hydril) Pin	4 1/2	2 15/16	.78	4213.28
7	Baker 3 1/2 by 5 1/2 Hyflo III Hanger	4 11/16	3.50	3.77	4212.51
8	Baker Hyflo III Liner Top Packer w/ 4" 6' setting sleeve	4 11/16 PKRID	4" 3.50	8.72	4208.74 4200.02
ORIGINAL					



PREPARED FOR  
Mr. Art MERRICK

PREPARED BY  
John Drumm

OFFICE  
Okla. City, Ok

PHONE (405)  
672-5557



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

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

ORIGINAL  
 INVOICE



HALLIBURTON ENERGY SERVICES, INC.

INVOICE NO.	DATE
219307	06/06/1997

WELL/LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	OWNER		
TORAGE 19-33	KINGMAN	KS	SAME		
SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE		
RATT	PRATT WELL SERVICE	SHOWN BELOW	06/06/1997		
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
34280	LEON FISCHER		L 4420 7 008	COMPANY TRUCK	25477

ORIGINAL

NORTHERN NATURAL GAS CO  
 BOX 178  
 CUNNINGHAM, KS 67035

DIRECT CORRESPONDENCE TO:

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

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 KANSAS CORPORATION COMMISSION

SEP 22 1997

REFERENCE NO.	DESCRIPTION	QUANTITY	UM	UNIT PRICE	AMOUNT
	RICING AREA - MID CONTINENT				
	OB PURPOSE - CEMENT PRODUCTION LINE CONSERVATION DIVISION				
000-117	MILEAGE CEMENTING ROUND TRIP WICHITA, KS	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	4077	FT	2,019.00	2,019.00
009-019		1	UNT		
011-205	MISCELLANEOUS PUMPING JOBS	500	PSI	983.00	N/C
		1	UNT		
36A	FLOAT SHOE 3 1/2" TBG.	1	EA	770.00	770.00
846.5007					
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	D-AIR 1, POWDER	6	LB	3.65	21.90
509-406	ANHYDROUS CALCIUM CHLORIDE	1	SK	46.90	46.90
507-210	FLOCEL	6	LB	1.90	11.40
508-127	CAL SEAL 60	1	SK	28.00	28.00
500-207	BULK SERVICE CHARGE	61	CFT	1.55	94.55
500-306	MILEAGE CMTG MAT DEL OR RETURN	47.43	TMI	1.18	110.00MN

JOB PURPOSE SUBTOTAL

APPROVAL FOR PAYMENT

4,049.95

INVOICE SUBTOTAL

Co 179 Acct 1070/00 Ctr. 0000  
 Co 179 WC 543828 PU 9000 CC 354P  
 Desc (20) Comp. Expansion  
 Approval Jimmie Adams Date 6-23-97

4,049.95

DISCOUNT- (BID)  
 INVOICE BID AMOUNT

809.99-  
 3,239.96

\*\*\*\*\* CONTINUED ON NEXT PAGE \*\*\*\*\*

TERMS: If Customer does not have an approved open account with Halliburton, all amounts 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 agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.

ORIGINAL  
INVOICE



HALLIBURTON ENERGY SERVICES, INC.

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

INVOICE NO.	DATE
219307	06/06/199

WELL LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	OWNER		
STORAGE 19-33	KINGMAN	KS	SAME		
SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE		
PRATT	PRATT WELL SERVICE	SHOWN BELOW	06/06/199		
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
634280	LEON FISCHER		L 4420 7 008	COMPANY TRUCK	2547

ORIGINAL

NORTHERN NATURAL GAS CO  
BOX 178  
CUNNINGHAM, KS 67035

DIRECT CORRESPONDENCE TO:  
1102 E. 8TH  
HAYS KS 67601  
913-625-3431

REFERENCE NO.	DESCRIPTION	QUANTITY	UM	UNIT PRICE	AMOUNT
	*- KANSAS STATE SALES TAX				156.02
	*- PRATT COUNTY SALES TAX				31.84
					187.86

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KANSAS CORPORATION COMMISSION

SEP 22 1997

CONSERVATION DIVISION  
WICHITA, KS

INVOICE TOTAL - PLEASE PAY THIS AMOUNT =====> \$3,427.82

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 agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.



**HALLIBURTON ENERGY SERVICES**  
HAL-1906-P

CHARGE TO: Northern Natl Gas Co  
 ADDRESS:  
 CITY STATE ZIP CODE:

CUSTOMER COPY  
 No. 219307-10  
 PAGE 1 OF 2

SERVICE LOCATIONS: 1. Pratt KS  
 WELL/PROJECT NO: 19-33  
 LEASE: Storage  
 COUNTY/PARISH: Kingman  
 STATE: KS  
 CITY/OFFSHORE LOCATION:  
 DATE: 6-6-97  
 OWNER: Same  
 TICKET TYPE:  SERVICE  
 SALES  
 NITROGEN JOB?  YES  NO  
 CONTRACTOR: Pratt Well Serv  
 RIG NAME/NO:  
 SHIPPED VIA: Howe  
 DELIVERED TO: Loc  
 ORDER NO:  
 WELL TYPE: OS  
 WELL CATEGORY: 02  
 JOB PURPOSE: 055  
 WELL PERMIT NO:  
 WELL LOCATION: land  
 REFERRAL LOCATION:  
 INVOICE INSTRUCTIONS: 4-4420-7-008

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	OF							
000-117		1			MILEAGE 53387# RD TP	36		mi		3 20	115 1/2
000-119		1			Crew mileage 40042 RDTP	36		mi		1 95	70 2
009407	009-019	1			Pump Charge 1 Trk	4077		ft	6 hrs	2019 1-	2019 1-
011-265		1			Misc Pump Charge 1 Trk	0-500		psi	4 hrs	983 1-	50/C
36-A	846-5007	1			Float Shoe 8rd	1		cg	3 1/2 lin	770 7	770 1-
RECEIVED SEP 22 1997 KANSAS CORPORATION COMMISSION WICHITA, KS ORIGINAL											
		1			Bulk Trk # B-338361						1075 1/2 1076 1/2

**LEGAL TERMS:** Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

DATE SIGNED: 6-6-97 TIME SIGNED: 1200  
 A.M.  P.M.

do  do not require IPC (Instrument Protection).  Not offered

SUB SURFACE SAFETY VALVE WAS:  
 PULLED & RETURN  PULLED  RUN

TUBE LOCK DEPTH  
 BEAN SIZE SPACERS  
 TYPE OF EQUALIZING SUB. CASING PRESSURE  
 TUBING SIZE TUBING PRESSURE WELL DEPTH  
 TREE CONNECTION TYPE VALVE

**SURVEY**  
 AGREE UN-DECIDED DIS-AGREE  
 OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?  
 WE UNDERSTOOD AND MET YOUR NEEDS?  
 OUR SERVICE WAS PERFORMED WITHOUT DELAY?  
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?  
 ARE YOU SATISFIED WITH OUR SERVICE?  
 YES  NO  
 CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL: 4049 9  
~~4050 4~~  
 FROM CONTINUATION PAGE(S)  
 SUB-TOTAL APPLICABLE TAXES WILL BE ADDED ON INVOICE

**CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES** The customer hereby acknowledges receipt of the materials and services listed on this ticket.

CUSTOMER OR CUSTOMER'S AGENT (PLEASE PRINT): Leon Fischer  
 CUSTOMER OR CUSTOMER'S AGENT (SIGNATURE): [Signature]  
 HALLIBURTON OPERATOR/ENGINEER: David L Scott EMP # B9475  
 HALLIBURTON APPROVAL: DL Scott







JOB LOG 4239-5

TICKET #	711707	TICKET DATE	6 4 97
BDA / STATE		COUNTY	
PSL DEPARTMENT			
CUSTOMER REP / PHONE			
API / UWI #			
JOB PURPOSE CODE			

REGION	North America	NW/COUNTRY	
MBU ID / EMP #		EMPLOYEE NAME	
LOCATION		COMPANY	
TICKET AMOUNT		WELL TYPE	
WELL LOCATION		DEPARTMENT	
LEASE / WELL #		SEC / TWP / RNG	

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	
--	--	--	--	--	--	--	--

ORIGINAL

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS		PRESS. (psi)		JOB DESCRIPTION / REMARKS
				T	C	Tbg	Csg	
#1	1030							Called Out
	1230							On loc w/ TRK's safety mtg Rig up Hawco T.I.H. w/ Liner + Hanger Liner on Bottom Break pipe w/ mud pump prepare liner in set position
	1430	3	18	✓		1000		pump 12% KCL preflush
	1456	3	3	✓		900		H2O Spacer
	1502	3	7.1	✓		600		mix + pump 25sk's Cmt @ 14.7ppg
	1506			✓		200		Finish mixing Cmt close to manifold
	1507	5	7					wash Pump + line
	1508	3		✓		200		Release Thg Plug + St Disp w/ mud
	1516	2	18	✓		700		Thg Plug Shear pins for Liner Plug Continue Disp
	1517		18.5	✓		1000		Plug Down on Baffle psi Dropped 200psi Release psi Float Held
	1518	1/4	18	✓		400		psi Liner + Hang Liner T.O.H. w/ Liner Hanger

Job Complete  
Thank you  
Scotty