

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: 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  Workover  
  
 Oil  SWD  SIOW  Temp. Abd.  
 Gas  ENHR  SIGW  
 Dry  Other (Core, WSW, Expl., Cathodic, etc)  
Gas Storage

If Workover:  
Operator: Northern Natural Gas  
Well Name: Prentice 19-34  
Comp. Date 3-9-78 Old Total Depth 4072'  
~~XXX~~ RAN LINER  
 Deepening  Re-perf.  Conv. to Inj/SWD  
 Plug Back  PBDT  
~~XXX~~ Commingled Docket No. \_\_\_\_\_  
 Dual Completion Docket No. \_\_\_\_\_  
 Other (SWD or Inj?) Docket No. \_\_\_\_\_

7-19-97 7-24-97 7-30-97  
Date of START Date Reached TD Completion Date of  
OF WORKOVER WORKOVER

API NO. 15- 095-20689-0001  
County Kingman  
SE - SW - SW - SE Sec. 19 Twp. 27S Rge. 10  <sup>E</sup>W  
210 Feet from S (circle one) Line of Section  
2106 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 # 19-34  
Field Name Cunningham  
~~STORAGE~~ Producing Formation Viola/Simpson  
Elevation: Ground 1702 KB 1710  
Total Depth 4132 PBDT 4120  
Amount of Surface Pipe Set and Cemented at 1421 Feet  
Multiple Stage Cementing Collar Used?  Yes  No  
If yes, show depth set 1003 Feet  
If Alternate II completion, cement circulated from \_\_\_\_\_  
feet depth to \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan REWORK JK 11-25-97  
(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:

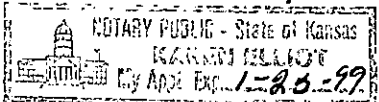
Operator Name Geary Mud Disposal  
Lease Name Gray License No. 284168  
\_\_\_\_\_ Quarter Sec. 15 Twp. 14N ~~X~~ Rng. 7W ~~XXX~~  
County Garfield, OK Docket No. 284168

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 Dan Dobbins  
Title Sr. Reservoir Analyst Date 11-19-97  
Subscribed and sworn to before me this 19<sup>th</sup> day of November  
19 97.  
Notary Public Karen Elliott  
Date Commission Expires January 23, 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)  
  
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NOV 21 1997  
11-21-97  
CONSERVATION DIVISION  
WICHITA, KS

SIDE TWO

Operator Name Northern Natural Gas Lease Name Prentice Well # 19-34  
 Sec. 19 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  Yes  No  
 (Attach Additional Sheets.)  
 Samples Sent to Geological Survey  Yes  No  
 Cores Taken  Yes  No  
 Electric Log Run  Yes  No  
 (Submit Copy.)

<input checked="" type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Name	Top	Datum
Viola	3970	-2260
Simpson	4072	-2362

List All E.Logs Run: Cement Bond  
 Compensated Density-Dual Spaced Neutron  
 Dual Induction Laterlog

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	115'	Common	200	1/4# Flocele
Surface	12 1/4"	8 5/8"	23	1430'	Reg Poz	700	18% NaCL
Production	7 7/8"	5 1/2"	15.5	4072'	Reg Poz	775	4% Gel 5# Gil

ADDITIONAL CEMENTING/SQUEEZE RECORD				
Purpose: Set Line	er 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	4024-4130	Standard	25	5# Gil, 18% NaCL, Flocele, Calseal

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	4073-76, 4080-93 (Simpson)	1000 Gal. 15% HCL	3972'
4	3971-4012 (Viola)		

TUBING RECORD		Size	Set At	Packer At	Liner Run
		2 3/8"	4053	4023	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Date of First, Resumed Production, SWD or Inj.		Producing Method <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input checked="" type="checkbox"/> Other (Explain)			
Storage Well - Inj/Wdl					
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  
 Production Interval: 3971-4012 Viola  
4073-76 Simpson  
4080-93



Natural gas. Electricity.  
Endless possibilities.™

September 26, 1997

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

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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

ORIGINAL

INVOICE



HALLIBURTON ENERGY SERVICES, INC.

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

INVOICE NO.	DATE
307881	07/24/199

WELL/LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	OWNER		
PRENTICE 19-34	KINGMAN	KS	SAME		
SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE		
PRATT	PRATT WELL SERVICE	SHOWN BELOW	07/24/199		
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
634280	ART MERRICK		J. 4420 7 008	COMPANY TRUCK	2759

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
PRICING AREA - MID CONTINENT					
JOB PURPOSE - CEMENT PRODUCTION LINER					
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	4132 FT		2,019.00	2,019.00
009-019		1 UNT			
009-027	PLUGGING BK SPOT CEMENT OR MUD	2 HR		291.00	582.00
		1 UNT			
314-163	CLAYFIX II	2 GAL		30.50	61.00
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	FLOCELE	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					3,922.95
INVOICE SUBTOTAL					3,922.95
DISCOUNT - (BID)					784.59-
INVOICE BID AMOUNT					3,138.36
*- KANSAS STATE SALES TAX					151.04
<p>Simpson Project 543828 LF</p> <p>***** CONTINUED ON NEXT PAGE *****</p>					

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CONSERVATION DIVISION  
WICHITA, KS

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.

CUSTOMER COPY



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

INVOICE

HALLIBURTON ENERGY SERVICES, INC.

INVOICE NO.	DATE
307881	07/24/1997

WELL LEASE NO./PROJECT		WELL/PROJECT LOCATION		STATE	OWNER
PRENTICE 19-34		KINGMAN		KS	SAME
SERVICE LOCATION	CONTRACTOR	JOB PURPOSE		TICKET DATE	
PRATT	PRATT WELL SERVICE	SHOWN BELOW		07/24/1997	
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
634280	ART HERRICK		4420 7 008	COMPANY TRUCK	27596

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
	** PRATT COUNTY SALES TAX				30.83
<b>INVOICE TOTAL - PLEASE PAY THIS AMOUNT</b>					<b>\$3,320.23</b>

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WICHITA, KS

*Simpson Project 57823 LF*

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.





TICKET CONTINUATION CUSTOMER COPY

TICKET No. 307581

HALLIBURTON ENERGY SERVICES

FORM 1911 R-10

CUSTOMER: Northern Natural Gas Co. WELL: Fortice 19-24 DATE: 7-24-97 PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	WELL		DATE		UNIT PRICE	AMOUNT
		LOC	ACCT	DF		QTY.	U/M	QTY.	U/M		
504-308	516.00261	1			Standard Cement	50	SKS			10.83	541.50
507-291	516.00337	1			Quikrete Rhd 5#/SK	125	BS			50	62.50
509-968	516.00158	1			Salt Rhd 18%	300	BS			17	51.00
507-775	516.00144	1			Habit-322 Fld .6%	14	BS			7.70	107.80
507-970	70.15764	1			E-Air 1 Fld .25%	6	BS			3.65	21.90
509-406	890.50812	1			Calcium Chloride Rhd 1%	1	SK			46.90	46.90
507-210	890.50071	1			Flocate Rhd .25#/SK	6	BS			1.90	11.40
508-127	890.50131	1			Calson Rhd 5%	1	SK			28.00	28.00
						Loaded on TRK # 5621-4673					
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						RECEIVED KANSAS CORPORATION COMMISSION NOV 21 1997 CONSERVATION DIVISION WICHITA, KS					
500-207		1			SERVICE CHARGE	CUBIC FEET		61		1.55	94.55
500-306		1			MILEAGE CHARGE	TOTAL WEIGHT	LOADED MILES	TON MILES	Minimum Charge		110.00
						5270	18				

No. B 338369

CONTINUATION TOTAL 1075.55



JOB LOG 4239-5

TICKET: 307831 TICKET DATE: 1/17/97

REGION: North America	NWA/COUNTRY: <i>USA</i>	BDA/STATE: <i>USA</i>	COUNTY: <i>JAISON</i>
MBU ID / EMP: <i>RC405 EPHS</i>	EMPLOYEE NAME: <i>Scott</i>	PSL DEPARTMENT: <i>...</i>	
LOCATION: <i>Pratt K2</i>	COMPANY: <i>Wart...</i>	CUSTOMER REP / PHONE:	
TICKET AMOUNT:	WELL TYPE: <i>OS</i>	API / UWI #:	
WELL LOCATION: <i>...</i>	DEPARTMENT: <i>...</i>	JOB PURPOSE CODE: <i>...</i>	
LEASE / WELL: <i>FRANCE 19-34</i>	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
<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>

ORIGINAL

CHART NO.	TIME	RATE (BPM)	VOLUME (GAL)	PUMPS		PRESS. (psi)		JOB DESCRIPTION / REMARKS
				T	C	Tbg	Csg	
<i>1627</i>	<i>1100</i>	<i>36</i>	<i>36</i>					<i>Called Out</i>
<i>1633</i>	<i>1400</i>	<i>3</i>	<i>3</i>					<i>On Loc w/Trk Safety mtg</i>
								<i>T.I.H. w/Liner + Set position</i>
								<i>Break Circ w/Rig every 15stds</i>
								<i>Rig up Howco</i>
<i>1627</i>	<i>3</i>	<i>18</i>	<i>18</i>	<input checked="" type="checkbox"/>		<i>1000</i>		<i>Pump 1290 KCL</i>
<i>1633</i>	<i>3</i>	<i>3</i>	<i>3</i>	<input checked="" type="checkbox"/>		<i>1000</i>		<i>Gelled H2O Spacer</i>
<i>1634</i>	<i>3</i>	<i>3</i>	<i>3</i>	<input checked="" type="checkbox"/>		<i>1000</i>		<i>H2O Spacer</i>
<i>1637</i>		<i>6.9</i>	<i>6.9</i>	<input checked="" type="checkbox"/>		<i>1000</i>		<i>mix + Pump 25 SKS (mt @ 14.7 ppg</i>
<i>1642</i>	<i>5</i>	<i>10</i>	<i>10</i>	<input checked="" type="checkbox"/>		<i>0</i>		<i>Close In manifold + wash pump + line</i>
<i>1643</i>	<i>3</i>			<input checked="" type="checkbox"/>		<i>100</i>		<i>St Disp w/ H2O</i>
<i>1644</i>	<i>3</i>	<i>9</i>	<i>9</i>	<input checked="" type="checkbox"/>		<i>600</i>		<i>Tought psi</i>
<i>1647</i>	<i>3</i>	<i>18.1</i>	<i>18.1</i>	<input checked="" type="checkbox"/>		<i>1800</i>		<i>Shroud Liner Plug</i>
<i>1648</i>	<i>0</i>	<i>18.8</i>	<i>18.8</i>	<input checked="" type="checkbox"/>		<i>3000</i>		<i>Liner plug Down</i>
<i>1650</i>				<input checked="" type="checkbox"/>		<i>0</i>		<i>Release psi Float Held</i>
								<i>T.I.H. w/D.P.</i>
								<i>Good Circ During Job</i>
								<i>Job Complete</i>
								<i>Thank you</i>
								<i>Scotty</i>

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