

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

API NO. 15- 095-20933-0001

County Kingman

E/2 - NW - NW - Sec. 30 Twp. 27S Rge. 10 X W

660 Feet from S N (circle one) Line of Section

1010 Feet from E W (circle one) Line of Section

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

Lease Name Prentice Well # 30-11

Field Name Cunningham

~~STORAGE~~ Formation Viola/Simpson

Elevation: Ground 1699 KB 1707

Total Depth 4150 PBTD 4137

Amount of Surface Pipe Set and Cemented at 1349 KB Feet

Multiple Stage Cementing Collar Used? X Yes No

If yes, show depth set 2180 KB 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 S Rng. 7W

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. Abd.

 Gas ENHR SIGW

 Dry X Other (Core, WSW, Expl., Cathodic, etc)

 Gas Storage

If Workover:

Operator: Northern Natural Gas

Well Name: Prentice 30-11

XXX Comp. Date 4-9-80 Old Total Depth 4070

 RAN LINER

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

 Plug Back PBTD

XXX Commingled Docket No.

 Dual Completion Docket No.

 Other (SWD or Inj?) Docket No.

8-3-97 8-7-97 8-14-97

~~DATE~~ Date of START 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 11-19-97

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

Notary Public Karen Elliott

Date Commission Expires January 25, 1998

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 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)			

NOV 21 1997

Form ACD-1 (7-91)



SIDE TWO

Operator Name Northern Natural Gas Lease Name Prentice Well # 30-11
 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 Yes No
 (Attach Additional Sheets.)
 Samples Sent to Geological Survey Yes No
 Cores Taken See Attached Yes No
 Electric Log Run Yes No
 (Submit Copy.)

List All E.Logs Run: Cement Bond Log
 Dual Induction Laterolog
 Compensated Density Dual Spaced Neutron

Log Formation (Top), Depth and Datum Sample

Name	Top	Datum
Viola	3982	-2275
Simpson	4084	-2377

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"	13.375"	48#/ft	102'	Common	120	-----
Surface	12.25"	8.625"	24#/ft	1394'	Reg Poz	600	.25% Flocele 3% CC
Production	7.875"	5.5"	15.5#/ft	4070'	Howco Lite Common	775 100	.5% Halad #9 10# 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	4049-4149	Standard	25	5# Gil. 18% NaCl, .25 Flocele, 5% 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	4085-4102		1000 Gals 15%HCL
4	3984-3990			
4	3994-4000 & 40004-4020			
4	3982-4022			

TUBING RECORD		Size	Set At	Packer At	Liner Run <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		2.375	4070	4040	
Date of First, Resumed Production, SMD or Inj. Storage Well - Viola/Simpson I/W			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: **METHOD OF COMPLETION** **Production Interval**
 Vented Sold Used on Lease Open Hole Perf. Dually Comp. Commingled 3982-4022 Viola
 (If vented, submit ACO-18.) Other (Specify) _____ 4085-4102 Simpson



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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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

ORIGINAL

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



HALLIBURTON ENERGY SERVICES, INC.

INVOICE

INVOICE NO.	DATE
307909	08/09/1997

WELL/LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	OWNER
RENTICE 30-11	KINGMAN	KS	SAME
SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE
PRATT	PRATT WELL SERVICE	SHOWN BELOW	08/09/1997
ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER
34280	W A MERRICK		L 4420 7 008
			SHIPPED VIA
			COMPANY TRUCK
			FILE NO.
			28368

ORIGINAL

NORTHERN NATURAL GAS CO
BOX 178
CUNNINGHAM, KS 67035

DIRECT CORRESPONDENCE TO:

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

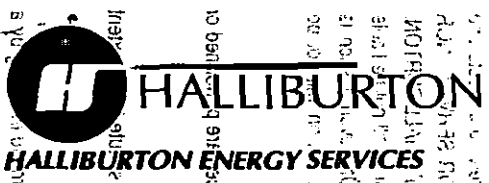
REFERENCE NO.	DESCRIPTION	QUANTITY	UM	UNIT PRICE	AMOUNT
PRICING AREA - MID CONTINENT					
JOB PURPOSE - CEMENT PRODUCTION LINER					
000-117	MILEAGE CEMENTING ROUND TRIP	36	MI	3.20	115.20
		1	UNT		
000-119	MILEAGE FOR CREW	36	MI	1.95	70.20
		1	UNT		
009-407	CEMENTING LINERS/SHORT CASING	4147	FT	2,019.00	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	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					3,279.95
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
Simpson Project 543828 LF					
INVOICE TOTAL - PLEASE PAY THIS AMOUNT =====>					\$2,775.48

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NOV 21 1997

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.



CHARGE TO: **NORTHERN NATURAL GAS CO.**
 ADDRESS: [Blank]
 CITY, STATE, ZIP CODE: [Blank]

CUSTOMER COPY No. [Blank]
 TICKET No. **307909 - 8**
 PAGE 1 OF 2

1. SERVICE LOCATIONS Trail 25555	WELL/PROJECT NO. 30-11	LEASE PRESTIGE	COUNTY/PARISH Keweenaw	STATE KS	CITY/OFFSHORE LOCATION WELL SITE	DATE 8-9-97	OWNER SAME
2. TICKET TYPE <input checked="" type="checkbox"/> SERVICE	NITROGEN JOB? <input type="checkbox"/> YES <input type="checkbox"/> NO	CONTRACTOR PAINT WELL SERV.	RIG NAME/NO. 02	SHIPPED W.T.	DELIVERED TO WELL SITE	ORDER NO. 30-275-104	
3. WELL TYPE OS	WELL CATEGORY 02	JOB PURPOSE 05.5	WELL PERMIT NO. LIARD				
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE / PART NUMBER	ACCOUNTING	DESCRIPTION	QTY.	UNIT PRICE	AMOUNT
000-117			MILEAGE	36 miles	3.20	115.20
000-119			NEW MILEAGE 9440 Ft.	30 miles	1.25	70.20
009-407	009-019		PUMP CHANGE	6 Hrs. 4147 Ft.	2019.00	2019.00
ORIGINAL						
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KANSAS CORPORATION COMMISSION						
NOV 21 1997						
CONSERVATION DIVISION						
WICHITA, KS						
1075.55						

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.

DATE SIGNED: **8-9-97**
 TIME SIGNED: **18:00**
 do not require IPC (Instrument Protection) Not offered

TYPE LOC	SUB SURFACE SAFETY VALVE WAS:		PAGE TOTAL
BEAN SIZE	TYPE OF EQUALIZING SUB.	CASING PRESSURE	32-79 95
DEPTH	TUBING SIZE	TUBING PRESSURE	FROM CONTINUATION PAGE(S)
SPACERS	TREE CONNECTION	TYPE VALVE	WELL DEPTH
SUB-TOTAL			32-79 95
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): [Blank] CUSTOMER OR CUSTOMER'S AGENT (SIGNATURE): **HEVIN P. GORDON** EMP # **28500**

HALLIBURTON OPERATOR/ENGINEER: [Blank] HALLIBURTON APPROVAL: [Signature]



TICKET CONTINUATION CUSTOMER COPY

TICKET No. 307909

HALLIBURTON ENERGY SERVICES

CUSTOMER: Northern Natural Gas Co. WELL: Prentice 30-11 DATE: 8-9-97 PAGE 2 OF 2

FORM 1911 R-10

PRICE REFERENCE	SECONDARY REFERENCE / PART NUMBER	ACCOUNTING			DESCRIPTION	WELL		DATE		UNIT PRICE	AMOUNT	
		LOC	ACCT	DF		QTY.	U/M	QTY.	U/M			
504-307	516.00201	1			Standard Cement	50	SK			10.53	541.50	
508-291	516.00337	1			Balsamite Pld 5#/SK	125	165			50	62.50	
509-968	516.00158	1			Salt Pld 17%	300	165			17	51.00	
507-775	516.00144	1			Haled-322 Pld .6%	14	165			7.90	109.80	
507-970	516.15764	1			D-A-1 Pld .25%	6	165			3.65	21.90	
507-406	890.50712	1			Calcium Chloride 5H 1%	1	SK			46.90	46.90	
507-310	890.50371	1			Flocc. Pld .25#/SK	6	165			1.90	11.40	
508-127	890.50131	1			Calcium Pld 5%	1	SK			28.00	28.00	
					Added on TRK # 57530 - Flu +							
ORIGINAL							RECEIVED KANSAS CORPORATION COMMISSION NOV 21 1997		CONSERVATION DIVISION WICHITA, KS			
500-207		1			SERVICE CHARGE							
500-306		1			MILEAGE CHARGE							
					TOTAL WEIGHT	LOADED MILES	CUBIC FEET					
					5270	18	61	1.55		94.55		
					Minimum Charge				110.00			

No. B 338374

CONTINUATION TOTAL 1075.55



JOB LOG 4239-5

TICKET # 30794
TICKET DATE 8-9-97

REGION North America	NWA/COUNTRY USA	BDA/STATE KS	COUNTY Sedgewick
MBU ID / EMP # 17200	EMPLOYEE NAME Karlene Campbell	PSL DEPARTMENT Personnel	
LOCATION Wichita, KS 67205	COMPANY Halliburton Well Serv. Co.	CUSTOMER REP / PHONE John H. Hester	
TICKET AMOUNT	WELL TYPE OS	API / UWI #	
WELL LOCATION Wichita, KS	DEPARTMENT Personnel	JOB PURPOSE CODE 855	
LEASE / WELL # 1720000 30-11	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
		B. Sibley					
		J. Hester					

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS		PRESS. (psi)		JOB DESCRIPTION / REMARKS
				T	C	Surf	Csg	
1	1700 1715							CRUISED OUT ON LOC w/ TRUCKS SAFETY ARRESTING T.I.H. WITH LOWER & HANGER LOWER ON BOTTOM, BREAK CIRC WITH MILD PUMP PREPARE LOWER IN SET POSITION HOOK UP HANG TO 2 7/8 D.P.
	1700 2/4	18	✓	500				PUMP 18 BBL 10% HCL FLUSH
	1710 2/4	3		500				H ₂ O SPACER
	1720 2/4	7.1		500				MIX & PUMP 25 XS. CONT AT 14.7 PPG SHUT DOWN WASH OUT PUMP & LINE RELEASE D.P. PLUG
	1727 2/4	0		200				START DESP.
	1734 2/4	18 1/4		1400 1000				D.P. PLUG SHEAR PENS FOR LOWER PLUG CONTINUE DESP.
	1735 2/4	18 1/2		2000				LOWER PLUG DOWN RELEASE - HEADS HANG LOWER PULL D.P. OUT OF WELL WASH UP - PACK UP JOB COMPLETE THANKS KEVIN

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CONSERVATION DIVISION
WICHITA, KS

180

CORE ANALYSIS RESULTS(CMS-300 Hydrostatic Confinement)

Northern Natural Gas
Well: Prentice 30-11
Field: Cunningham

ORIGINAL

File: DAL-97295
1-October-1997

Plug Number	Plug Depth, feet	Net Overburden Pressure: 800 psi			Ambient Conditions			Grain Density, gm/cc
		CMS-300 Permeability		Porosity, percent	PDPK-300 Permeability		Porosity, percent	
		Klinkenberg, millidarcys	to Air, millidarcys		Klinkenberg, millidarcys	to Air, millidarcys		
1	4074.35				0.065	0.119	6.4	2.77
2	4075.35				0.053	0.110	5.7	2.75
3	4076.20	0.211	0.232	6.4				2.78
4	4077.40	0.117	0.302	9.0				2.80
5	4078.40	0.067	0.105	4.0				2.66
6	4079.25	8.82	9.64	9.9				2.65
7	4080.40	0.055	0.096	9.9				2.75
8	4081.10	16.2	17.5	12.4				2.68
9	4082.20	3.72	4.33	13.4				2.72
10	4083.70	3.11	3.59	12.1				2.69
11	4084.25	2.20	2.65	13.8				2.70
12	4085.50	0.481	0.633	11.0				2.71
13	4086.30	0.757	0.973	11.3				2.71
14	4087.40	1.22	1.54	11.4				2.68
15	4088.20	0.535	0.713	11.4				2.75
16	4089.40	0.488	0.650	11.5				2.71
17	4090.35	0.242	0.351	8.7				2.91
18	4091.30	0.222	0.341	11.9				2.73
19	4092.30	0.163	0.258	11.1				2.71
20	4093.10				0.640	0.820	13.2	2.63
21	4097.40	0.054	0.087	8.9				2.70
22	4098.20	0.064	0.101	10.7				2.66
23	4099.70	0.030	0.052	9.5				2.66
24	4100.30	0.016	0.028	7.3				2.64
25	4101.30	0.013	0.022	6.5				2.65
26	4102.30	0.038	0.059	8.2				2.64
27	4103.35	0.106	0.163	10.5				2.63
28	4104.40	1.06	1.34	9.5				2.66
29	4105.20	0.046	0.076	6.2				2.65
30	4106.20	0.151	0.200	8.1				2.66
31	4107.35	0.390	0.448	5.0				2.66
32	4108.40				0.160	0.031	3.3	2.65
33	4109.30	1.30	1.37	2.9				2.69
34	4110.25	0.048	0.077	10.1				2.65
35	4111.30				0.013	0.019	2.2	2.62
36	4112.50				0.010	0.042	3.1	2.62
37	4113.35				No Plug Possible			

Permeabilities measured on PDPK-300 were unsuitable for CMS-300 testing.

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Preliminary Data

Core Laboratories

CONSERVATION DIVISION
WICHITA, KS

TOTAL P.02

