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KCC WICHITA

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

ORIGINAL Form ACO-1
September 1999
Form Must Be Typed

Operator: License # 5539
Name: Pan Gas Storage Co. dba Southwest Gas Stge
Address: 5444 Westheimer Road
City/State/Zip: Houston, TX 77056-5306
Purchaser: _____
Operator Contact Person: Larry Jenkins WT-418
Phone: (713) 989-7484
Contractor: Name: Cheyenne
License: 5382

Wellsite Geologist: Peter Debenham
Designate Type of Completion:
____ New Well Re-Entry ____ Workover
____ Oil ____ SWD ____ SIOW ____ Temp. Abd.
 Gas ____ ENHR ____ SIGW
____ Dry ____ Other (Core, WSW, Expl., Cathodic, etc)

If Workover/Re-entry: Old Well Info as follows:
Operator: Southwest Gas Storage Company
Well Name: Bartel 1-5
Original Comp. Date: 7/7/81 Original Total Depth: 5646
____ Deepening ____ Re-perf. ____ Conv. to Enhr./SWD
____ Plug Back ____ Plug Back Total Depth
____ Commingled Docket No. _____
____ Dual Completion Docket No. _____
 Other (SWD or Enhr.?) Docket No. 195,523-C
10/02/01 11/8/01 1/18/02
Spud Date or Date Reached TD Completion Date or
Recompletion Date Recompletion Date

API No. 15 - 119-20478-01-0501
County: Meade
SE-NE-NE Sec. 5 Twp. 33 S. R. 28 East West
850 feet from S / (circle one) Line of Section
180 feet from (circle one) E / W (circle one) Line of Section
Footages Calculated from Nearest Outside Section Corner:
(circle one) NE SE NW SW
Lease Name: Bartel Well #: 1-5
Field Name: Borchers North Storage Field
Producing Formation: Morrow
Elevation: Ground: 2441 Kelly Bushing: 2460
Total Depth: 6833 Plug Back Total Depth: 6833
Amount of Surface Pipe Set and Cemented at 2541 Feet
Multiple Stage Cementing Collar Used? Yes No
If yes, show depth set _____ Feet
If Alternate II completion, cement circulated from _____
feet depth to _____ w/ _____ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit) ALTI WHM
7-25-07
Chloride content 1000 ppm Fluid volume 1200 bbls
Dewatering method used Hauled offsite
Location of fluid disposal if hauled offsite:
Operator Name: Gene R. Dill
Lease Name: Regier SWD License No.: 6652
Quarter _____ Sec. 17 Twp. 33 S. R. 27 East West
County: Meade Docket No.: c-21,232

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 of 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: Larry J Jenkins
Title: Principal Petroleum Engineer Date: 1/31/02
Subscribed and sworn to before me this 31st day of January
2002
Notary Public: Gloria A. Rivas
Date Commission Expires: 8-16-2005

KCC Office Use ONLY
____ Letter of Confidentiality Attached
If Denied, Yes Date: _____
____ Wireline Log Received
____ Geologist Report Received
____ UIC Distribution

Operator Name: Southwest Gas Storage Company Lease Name: Bartel Well #: 1-5
 Sec. 5 Twp. 33 S. R. 28 East West County: Meade

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems 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 test, along with final chart(s). Attach extra sheet if more space is needed. Attach copy of all Electric Wireline Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Electric Log Run <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(Submit Copy)</i> List All E. Logs Run: Cement bond log, gamma ray neutron, vertilog	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> Log</td> <td>Formation (Top), Depth and Datum</td> <td><input checked="" type="checkbox"/> Sample</td> </tr> <tr> <td>Name</td> <td>Top</td> <td>Datum</td> </tr> <tr> <td>Atoka</td> <td>5455MD</td> <td>5342TVD</td> </tr> <tr> <td>Morrow Shale</td> <td>5844MD</td> <td>5526TVD</td> </tr> <tr> <td>Morrow B-C Sand</td> <td>5855MD</td> <td>5530TVD</td> </tr> <tr> <td>Morrow A Sand</td> <td>5896MD</td> <td>5542TVD</td> </tr> <tr> <td>All depths are KB Datum</td> <td>2460KB</td> <td></td> </tr> </table>	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input checked="" type="checkbox"/> Sample	Name	Top	Datum	Atoka	5455MD	5342TVD	Morrow Shale	5844MD	5526TVD	Morrow B-C Sand	5855MD	5530TVD	Morrow A Sand	5896MD	5542TVD	All depths are KB Datum	2460KB	
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All depths are KB Datum	2460KB																					

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	22	20	53	62		162	
Surface	12.25	8.625	28	2541	H,HLC	1600	4%gel, 10#Calse
Production	7.875	5.5	17	5928	Midcon C, P	365	1%CC, 10#Gilsol

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	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 checked="" type="checkbox"/> Plug Off Zone	Plug first	lateral due to junk	in hole.	15.6#, 17#, 1%CC, 0.5 CFR3
	4460-5933	premium	200	100 sx mixed to 15.6#, 100 sx mixed to 17#

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
		Openhole completed 5934-6833		1000 gal 7.5%FE Acid with Nitrogen	

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TUBING RECORD		Size	Set At	Packet At	Liner Run <input type="checkbox"/> Yes <input type="checkbox"/> No
None					
Date of First, Resumed Production, SWD or Enhr. Gas Storage			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	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

Disposition of Gas		METHOD OF COMPLETION		Production Interval	
<input type="checkbox"/> Vented	<input type="checkbox"/> Sold	<input type="checkbox"/> Used on Lease	<input checked="" type="checkbox"/> Open Hole	<input type="checkbox"/> Perf.	<input type="checkbox"/> Dually Comp.
<i>(If vented, Sumit ACO-18.)</i>			<input type="checkbox"/> Other (Specify)		



JOB SUMMARY

SALES ORDER NUMBER 1589254	TICKET DATE 10/20/01
BDA / STATE Kansas	COUNTY Meade
PSL DEPARTMENT Cementing Services	CUSTOMER REP / PHONE Dennis Carlile (713)254-1267
API/UMI # 1511920478010	Description Whipstock Plug
SAP BOMB NUMBER 7529	
HES FACILITY (CLOSEST TO WELL SITE) Liberal, Kansas	

REGION North America Land	NWA / COUNTRY Mid Continent
MBU ID / EMPL # MCL10101 106322	H.E.S. EMPLOYEE NAME Danny McLane
LOCATION Liberal	COMPANY CMS Panhandle Eastern Pipeline
TICKET AMOUNT \$10,420.47	WELL TYPE Storage
WELL LOCATION Meade, Kansas	DEPARTMENT Cement
LEASE NAME Bartel	Well No. SEC / TWP / RNG 1-5 5 33S 28W

HES EMP NAME / EMP # / (EXPOSURE HOURS)	HRS	HRS	HRS	HRS
McLane, D - 106322	8.0			
Tate, N - 105953	6.0			
Rojas, J - 241020	5.0			

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H.E.S. UNIT #S / (R / T MILES)	R / T MILES	R / T MILES	R / T MILES	R / T MILES
420995	66			
10251401	66			
54225 6611	65			

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Form. Name _____ Type: _____
 Form. Thickness _____ From _____ To _____
 Packer Type _____ Set At _____
 Bottom Hole Temp. _____ Pressure _____
 Retainer Depth. _____ Total Depth _____

Date	Called Out	On Location	Job Started	Job Completed
	10/20/2001	10/20/2001	10/20/2001	10/20/2001
Time	1200	1400	1715	1845

Type and Size	Qty	Make
Float Collar		
Float Shoe		
Centralizers		
Top Plug		
HEAD		
Limit clamp		
Weld-A		
Guide Shoe		
BTM PLUG		

	New/Used	Weight	Size	Grade	From	To	Max. Allow
Casing					KB		
Liner							
Drill Pipe	Used	20.0	4 1/2		KB		
Open Hole							Shots/Ft.
Perforations							

Materials			
Mud Type	Density	Lb/Gal	
Disp. Fluid	Density	Lb/Gal	
Prop. Type	Size	Lb	
Acid Type	Gal.	%	
Surfactant	Gal.	In	
NE Agent	Gal.	In	
Fluid Loss	Gal/Lb	In	
Gelling Agent	Gal/Lb	In	
Fric. Red.	Gal/Lb	In	
Breaker	Gal/Lb	In	
Blocking Agent	Gal/Lb		
Perfpac Balls	Qty.		
Other			
Other			
Other			
Other			

Hours On Location		Operating Hours		Description of Job
Date	Hours	Date	Hours	
10/20		10/20		See Job Log
Total		Total		

Ordered	Hydraulic Horsepower Avail.	Used
Treating	Average Rates in BRM Disp.	Overall
Feet	Cement Left in Pipe Reason	SHOE JOINT

Cement Data								
Stage	Sacks	Cement	Bulk/Sks	Additives	W/Rq.	Yield	Lbs/Gal	
1	100	Premium	Bulk	Neat	5.20	1.18	15.60	
	100	Premium	Bulk	.5% CFR-3 1% CC	3.75	0.99	17.0	

Summary					
Circulating Breakdown	Displacement	Preflush:	BBI	Type:	
	MAXIMUM	Load & Bkdn:	Gal - BBI	Pad:Bbl-Gal	
Average Shut In: Instant	Frac. Gradient	Treatment:	Gal - BBI	Disp:Bbl	
	5 Min.	Cement Slurry	BBI		
	15 Min	Total Volume	BBI	21 17.6	#VALUE!

THE INFORMATION STATED HEREIN IS CORRECT
 CUSTOMER REPRESENTATIVE *[Signature]* SIGNATURE



HALLIBURTON

JOB LOG

TICKET #	1589254	TICKET DATE	10/20/01
REGION	North America Land	MVA / COUNTRY	Mid Continent
BDA / STATE	Kansas	COUNTY	Meade
MBU ID / EMPL #	MCLI0101 106322	H.E.S EMPLOYEE NAME	Danny McLane
LOCATION	Liberal	PSL DEPARTMENT	Cementing Services
TICKET AMOUNT	\$10,420.47	COMPANY	CMS Panhandle Eastern Pipeline
WELL TYPE	Storage	CUSTOMER REP / PHONE	Dennis Carlile (713)254-1267
WELL LOCATION	Meade, Kansas	API/UWI #	15119204780100
DEPARTMENT	Cement	JOB PURPOSE CODE	Whipstock Plug
LEASE NAME	Bartel	SEC / TWP / RNG	5 33S 28W
WELL No.	1-5	HES FACILITY (CLOSEST TO WELL)	Liberal, Kansas

HES EMP NAME/EMP # (EXPOSURE HOURS)	HRS	HES EMP NAME/EMP # (EXPOSURE HOURS)	HRS	HES EMP NAME/EMP # (EXPOSURE HOURS)	HRS
McLane, D - 106322	6				
Tate, N - 105953	6				
Rojas, J - 241020	5				

Chart No.	Time	Rate (BPM)	Volume (BBL/GAL)	Press (PSI)			Job Description / Remarks
				N2	CSO	Tc _g	
	1200						Called for job
	1400						On location hold safety meetig set up pump truck rig running in D.P.
	1647						D.P. on bottom and circulating hole
	1712						Rig thur circulating
	1715						Hook up to Halliburton
							Job procedure for plug @ 5934
	1717				0/2750		Pressure test lines
	1718	2.0	10.0		0/150		Start fresh water ahead
	1726	5.5	21.0		0/400		Start cement @ 15.6#
	1731	6.0	3.0		100		Start fresh water behind
	1732	7.0	68.0		100/150		Start mud displacement
	1742				100/0		Shut down and knock losse
	1745						D.P. pulled dry
							Rig tripping out D.P. to set 2nd plug @4750
							Job procedure for plug @ '4750
	1809				0/2600		Pressure test lines
	1812	4.0	20.0		0/200		Start fresh water ahead
	1817	4.0	17.6		200/100		Start cement @ 17#
	1823	5.5	6.0		100		Start fresh water behind
	1824	6.5	50.5		100/150		Start mud displacement
	1832				150/0		Shut down and knock losse
	1835						D.P. pulled dry

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Thank you for calling Halliburton
Danny and Crew



JOB SUMMARY

1611429

10/31/01

REGION NORTH AMERICA LAND		AREA / COUNTRY Mid Continent		BDA / STATE KS	COUNTY MEADE
MCL ID / EMPL # MCL1 0113/198516		H.E.B. EMPLOYEE NAME JASON CLEMENS		PBL DEPARTMENT Cementing Services	
LOCATION MEADE		COMPANY CMS PANHANDLE EASTERN		CUSTOMER REP / PHONE DENNIS CARLILE	
TICKET AMOUNT \$24,163.94		WELL TYPE STORAGE		APUUM #	
WELL LOCATION MEADE		DEPARTMENT ZI		CAP BOMB NUMBER 7523	
LEASE NAME BARTEL		Well No. 1-5		Description Cement Production Casing	
		SEC / TWP / RANG 5-33S-28W		H.E.B. FACILITY (CLOSEST TO WELL RYD) LIBERAL KS.	

H.E.B. EMP NAME / EMP # / (EXPOSURE HOURS)	HRB	HRB	HRB	HRB
CLEMENS, J 108516	7.0			
Cochran, M - 217388	7.0			
Archuleta, M - 226383	7.0			
Rojas, J - 241020	7.0			

H.E.B. UNIT # / (R/T MILES)	R/T MILES	R/T MILES	R/T MILES	R/T MILES
421289	66			
10261403	66			
54029/6612	66			
10243658/75818	66			

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Form Name _____ Type: _____
 Form Thickness _____ From _____ To _____
 Packer Type _____ Set At _____
 Bottom Hole Temp. _____ Pressure _____
 Retainer Depth _____ Total Depth _____

Date	Called Out	On Location	Job Started	Job Completed
	10/31/2001	10/31/2001	10/13/2001	10/31/2001
Time	300	600	1854	2003

Type and Size	Qty	Make
Float Collar	1	HES
Float Shoe		
Centralizers	27	
Top Plug	1	
HEAD	1	
Limit clamp	20	
Weld-A	2	
Guide Shoe	1	
BTM PLUG		

Well Data	New/Used	Weight	Size	Grade	From	To	Max. Allow
Casing	N	17.0	5 1/2		0	5,946	
Liner							
Liner							
Tubing							
Drill Pipe							Shots/Ft.
Open Hole							
Perforations							
Perforations							
Perforations							

Materials	Density	Lb/Gal
Mud Type _____	_____	_____
Disp. Fluid _____	_____	_____
Prop. Type _____	_____	_____
Prop. Type _____	_____	_____
Acid Type _____	_____	_____
Acid Type _____	_____	_____
Surfactant _____	_____	_____
NE Agent _____	_____	_____
Fluid Loss _____	_____	_____
Gelling Agent _____	_____	_____
Fric. Red. _____	_____	_____
Breaker _____	_____	_____
Blocking Agent _____	_____	_____
Perfpac Balls _____	_____	_____
Other _____	_____	_____
Other _____	_____	_____
Other _____	_____	_____
Other _____	_____	_____

Hour	On Location	Off Location	Hours	Description of Job
10/31			13.0	
10/13			1.0	
Total			13.0	
			1.0	

Ordered	Avail.	Used
Treating		Overall
Feet 39	Reason	SHOE JOINT

Stage	Sacks	Cement	Bulk/Sks	Additives	W/Rq.	Yield	Lbs/Gal
1	270	MIDCON C	Bulk	1% CC, 10# GILSONITE	13.33	2.44	12.00
2	95	PREM	Bulk	.2% CFR-3, .5% D AIR-3000, .1% FWCA	5.00	1.16	16.7
3			Bulk				
4			Bulk				

Summary			
Circulating Breakdown	Displacement	Preflush: BBI	24.00
	MAXIMUM	Load & Bkdn: Gal - BBI	
Average Shut In: Instant	Frac. Gradient	Treatment: Gal - BBI	
	5 Min. 16 Min	Cement Slurry BBI	Disp:Bbl
		Total Volume BBI	161.00
			LC 74 TC 20

THE INFORMATION STATED HEREIN IS CORRECT
 CUSTOMER REPRESENTATIVE _____

[Signature]
 SIGNATURE _____

