

Cement Post Job Report

Client: PDC Energy

Well Name: George 3NA

API #: 05-123-51782

Job Date: March 14, 2024

Job Type: New Well - 5.5" Production String

Cement Company & Contact: EXERO Well Integrity -
Cheve Meyer 720-239-3819



TREATMENT REPORT

CLIENT	WELL	RIG	JOB TYPE	THREAD TYPE	WELLHEAD CONNECTION
PDC Energy	George 03NA	True 41	Production	Buttress	5 1/2" HP Cement Head

WELL MD (FT)	WELL TVD (FT)	DEVIATION (DEG)	NUMBER OF STAGES	BHST (DEG)	BHCT (DEG)
18,154	6723	90	1	230	230

PACKER/RETAINER/CIBP/DV TOOL DEPTHS (FT)	TOOL TYPE	TOP OF PERFS (FT)	BOTTOM OF PERFS (FT)	NUMBER OF HOLES

CASING/TUBING/DP DETAILS								
STRING TYPE	GRADE	OD"	WT/FT	ID"	OH SIZE"	% EXCESS LEAD	% EXCESS TAIL	TOTAL DEPTH (FT)
Surface		9.625	36	8.921	12.25			2017
Production	P110	5.5	20	4.778	8.5	0	0	18,147
MAXIMUM CASING/TUBING/DP PSI			MAXIMUM ANNULAR PSI					

Mud Type	OBM	Rotate Y,N	NO	Circulation Data				Water Requirements (bbls)	
Mud ppg	10.2	Rate (rpm)		Circulate Time (hrs)	1.5			Spacers	160
Flow Temp		Torque Val.		Circulation Rate (bpm)	10	PSI	1200	Stage 1 Lead	148
Vis. Sec/qt		Time (hr)		Full Circulation ? (Y,N,P)	Yes			Stage 1 Tail	244
PV (cP)		Pipe Reciprocation		Gas Present (Y,N)	YES	Units	1200	Stage 2 Lead	
Yield Pt		Recip Y,N	NO	Centralizers/Plugs				Stage 2 Tail	
10 sec gel		Stroke (ft)		Quantity & Type	Customer Provided			Displacement	403
10 min gel		Recip time		Top Plug/Type	Customer Provided			Wash up	20
30 min gel		Stuck ?		Bottom Plug/Type	Customer Provided			Total + 10% Safety	1073

Preflush & Spacers		Stage 1 Lead - Class G		Stage 1 Tail - Class G		Stage 2 Lead		Stage 2 Tail		Displacement	
Spacer 1	Spacer	Density	12.9	Density	13.7	Density		Density		Fluid Type	Water
Density	12	Sacks	1643	Sacks	1545	Sacks		Sacks		Dens. ppg	8.33
Volume	160	Vol/bbls	319.0	Vol/bbls	377.0	Vol/bbls	0.0	Vol/bbls	0.0	Vol. bbl	403
Rate	10	Rate	10	Rate	10	Rate		Rate		Rate bpm	8
Spacer 2		Yield	1.09	Yield	1.37	Yield		Yield		Clay Stay?	NO
Density		Gal/Sk	3.77	Gal/Sk	6.63	Gal/Sk		Gal/Sk		Biocide ?	YES
Volume		% Excess	0	% Excess	0	% Excess		% Excess		Slow @ bbl	383
Rate		TOL (ft)	0	TOT (ft)	7645	TOL (ft)		TOT (ft)		Bump PSI	3000

Final Displacement (bbls)	403
Bump Plug?	YES
Final Bump Pressure (psi)	3500
Full Returns throughout job?	FULL
Vol. away/Time when returns lost	NA
Vol. away when returns were regained	NA
Spacer to Surface?	YES
Spacer volume returned (bbls)	160
Cement to surface?	YES
Cement volume to surface stage 1	30
Cement volume to surface stage 2	

Surface Top Out Details-Pumped		Job Summary & Chems Used	
Cement Type		MFC 47 (gal)	112
Dens. ppg		MFC 67 (gal)	160
Sacks qty		Defoamer (gal)	35
Gal/sk		Biocide (gal)	20
Yield		Corr. Inhib (gal)	
Lbs. of chloride used		Fiber (lbs)	145
Top out pipe used ?		Chloride (lbs)	
Feet of top out pipe		Retarder (lbs)	
Annulus holding?		Clay Stay (gal)	
Sodium Silicate Used		Other	

JOB LOG

CLIENT	WELL	RIG	JOB TYPE	START DATE	Ambient Conditions
PDC Energy	George 03NA	True 41	Production	3/14/2024	Temp / Hum / Air Press 34 deg F / 87% / 25.10 in

DATE (dd/mm)	TIME (hh:mm)	DENSITY (ppg)	RATE (bpm)	VOL. (bbl)	TOTAL VOL.	PRESSURE	TREATMENT COMMENTS
3/14/2024	2:00:00 AM						CREW CALLED OUT FOR AN ON LOCATION TIME OF 10:00 AM
	8:00:00 AM						CREW ARRIVES ON LOCATION/CHECK IN WITH CO REP/CALCULATE JOB
	9:45:00 AM						CASING LANDED/SPOT IN AND RIG UP EQUIPMENT/CIRCULATE WELL
	11:15:00 AM						SAFETY MEETING
	11:30:00 AM						RIG UP FLOOR/PRESET BOTTOM PLUG
	12:00:00 PM	8.3	3.0	3	3	330	FILL LINES
	12:03:00 PM	8.3	1.0	1	1	6196	PRESSURE TEST
	12:05:00 PM	12	10.0	160	160	1500	PUMP SPACER AT 12 PPG WITH SURFACTANTS AND FIBER
	12:23:00 PM	12.9	10.0	319	319	1500	PUMP LEAD AT 12.9 PPG TOL-0 (1643 SKS, 1.09 YLD, 3.77 GPS, 148 MXH20)
	1:00:00 PM	13.7	10.0	377	377	1600	PUMP TAIL AT 13.7 PPG TOT-7645' (1545 SKS, 1.37 YLD, 6.63 GPS, 244 MXH20)
	1:38:00 PM	8.3	10.0	8	8	1600	PUMP 8 BBLs OF SUGAR WATER
	1:39:00 PM						SHUT DOWN/WASHUP PUMPS AND LINES/SET TOP PLUG
	1:45:00 PM	8.3	10.0			2600	BEGIN DISPLACEMENT USING FRESHWATER WITH BIOCIDES IN ALL
	1:54:00 PM	8.3	10.0	50	50	2500	FRESHWATER DISPLACEMENT
	1:59:00 PM	8.3	10.0	50	100	3600	FRESHWATER DISPLACEMENT
	2:04:00 PM	8.3	10.0	50	150	3190	FRESHWATER DISPLACEMENT
	2:16:00 PM	8.3	8.0	50	200	3750	FRESHWATER DISPLACEMENT/FIBER INTERFACE VISIBLE AT THE SHAKERS
	2:22:00 PM	8.3	8.0	40	240	3750	FRESHWATER DISPLACEMENT/PRODUCT SENT TO OPEN TOPS
	2:24:00 PM	8.3	8.0	10	250	3750	FRESHWATER DISPLACEMENT
	2:28:00 PM	8.3	8.0	50	300	3800	FRESHWATER DISPLACEMENT
	2:36:00 PM	8.3	8.0	50	350	3750	FRESHWATER DISPLACEMENT
	2:39:00 PM	8.3	4.5	30	380	3000	FRESHWATER DISPLACEMENT/SLOWED RATE TO LAND PLUG/LEAD INTERFACE AT OPENTOPS
	2:44:00 PM	8.3	4.5	23	403	3500	LAND PLUG ON CALCULATED DISPLACEMENT/WENT 500 OVER FCP
	2:49:00 PM	8.3	1.0	19	19	5700	SET PACKER PER TOOL REP
	3:25:00 PM	8.3					CHECK FLOATS/FLOATS HELD/6BBLs BACK
	3:35:00 PM	8.3	5.0	60	60	150	RIG IN TO STACK/FLUSH 60 BBLs THRU BOP/RIG DOWN FLOOR
	4:00:00 PM						FINISH RIGGING DOWN/FINISH PAPERWORK
	4:30:00 PM						DEPART LOCATION

George 3NA Production Pump Chart – Pressure / Rate / Density

