EXERO

ROCK SOLID
WELL INTEGRITY
SOLUTIONS

Cement Post Job Report

Client: PDC Energy

Well Name: George 4N

API #: 05-123-51777

Job Date: March 17, 2024

Job Type: New Well - 5.5" Production String

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

EXERO

TREATMENT REPORT

CLIENT	WELL	RIG	JOB TYPE	THREAD TYPE	WELLHEAD CONNECTION
PDC Energy	George 04N	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)
17,945		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			2015
Production	P110	5.5	20	4.778	8.5	0	0	17,935
MAXIMUM CASING/TUBING/DP PSI						MAXIMUM ANNULAR PSI		

Mud Type	OBM
Mud ppg	10.2
Flow Temp	
Vis. Sec/qt	
PV (cP)	
Yield Pt	
10 sec gel	
10 min gel	
30 min gel	

Rotate Y,N	NO
Rate (rpm)	
Torque Val.	
Time (hr)	
Pipe Reciprocation	
Recip Y,N	NO
Stroke (ft)	
Recip time	
Stuck ?	

Circulation Data			
Circulate Time (hrs)	1.5		
Circulation Rate (bpm)	10	PSI	2500
Full Circulation ? (Y,N,P)	Yes		
Gas Present (Y,N)	NO	Units	
Centralizers/Plugs			
Quantity & Type	Customer Provided		
Top Plug/Type	Customer Provided		
Bottom Plug/Type	Customer Provided		

Water Requirements (bbls)	
Spacers	160
Stage 1 Lead	148
Stage 1 Tail	241
Stage 2 Lead	
Stage 2 Tail	
Displacement	398
Wash up	20
Total + 10% Safety	1064

Preflush & Spacers	
Spacer 1	Spacer
Density	12
Volume	160
Rate	10
Spacer 2	
Density	
Volume	
Rate	

Stage 1 Lead - Class G	
Density	12.9
Sacks	1643
Vol/bbls	319.0
Rate	10
Yield	1.09
Gal/Sk	3.77
% Excess	0
TOL (ft)	0

Stage 1 Tail - Class G	
Density	13.7
Sacks	1525
Vol/bbls	372.1
Rate	10
Yield	1.37
Gal/Sk	6.63
% Excess	0
TOT (ft)	7629

Stage 2 Lead	
Density	
Sacks	
Vol/bbls	0.0
Rate	
Yield	
Gal/Sk	
% Excess	
TOL (ft)	

Stage 2 Tail	
Density	
Sacks	
Vol/bbls	0.0
Rate	
Yield	
Gal/Sk	
% Excess	
TOT (ft)	

Displacement	
Fluid Type	Water
Dens. ppg	8.33
Vol. bbl	398
Rate bpm	7
Clay Stay?	NO
Biocide ?	YES
Slow @ bbl	378
Bump PSI	3200

Final Displacement (bbls)	398
Bump Plug?	YES
Final Bump Pressure (psi)	3700
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	38
Cement volume to surface stage 2	NA

Surface Top Out Details-Pumped	
Cement Type	
Dens. ppg	
Sacks qty	
Gal/sk	
Yield	
Lbs. of chloride used	
Top out pipe used ?	
Feet of top out pipe	
Annulus holding?	
Sodium Silicate Used	

Job Summary & Chems Used	
MFC 47 (gal)	112
MFC 67 (gal)	160
Defoamer (gal)	35
Biocide (gal)	20
Corr. Inhib (gal)	
Fiber (lbs)	145
Chloride (lbs)	
Retarder (lbs)	
Clay Stay (gal)	
Other	

JOB LOG

CLIENT	WELL	RIG	JOB TYPE	START DATE	Ambient Conditions
PDC Energy	**George 04N**	**True 41**	**Production**	**3/17/2024**	Temp / Hum / Air Press 39 Deg F / 70% / 25.14 in

DATE (dd/mm)	TIME (hh:mm)	DENSITY (ppg)	RATE (bpm)	VOL. (bbl)	TOTAL VOL.	PRESSURE	TREATMENT COMMENTS
3/17/2024	8:00:00 AM						CREW CALLED OUT FOR AN ON LOCATION OF 4:00 PM
	3:00:00 PM						CREW ARRIVES ON LOCATION/CHECK IN WITH CO REP/CALCULATE JOB
	6:45:00 PM						CASING LANDED/CIRCULATE WELL/SPOT IN AND RIG UP EQUIPMENT
	8:20:00 PM						SAFETY MEETING/RIG UP FLOOR/DROP BOTTOM PLUG
	8:56:00 PM	8.3	3.0	3	3	550	FILL LINES
	8:58:00 PM	8.3	1.0	1	1	6200	PRESSURE TEST
	9:00:00 PM	12	10.0	160	160	1800	PUMP SPACER AT 12 PPG WITH SURFACTANTS AND FIBER
	9:18:00 PM	12.9	10.0	319	319	1600	PUMP LEAD CEMENT AT 12.9 PPG TOP-SURFACE (1643 SKS, 1.09 YLD, 3.77 GPS, 148 MXH20)
	9:51:00 PM	13.7	10.0	372	372	1500	PUMP TAIL CEMENT AT 13.7 PPG TOP-7629' (1525 SKS, 1.37 YLD, 6.63 GPS, 241 MXH20)
	10:30:00 PM	8.3	10.0	8	8	1920	PUMP SUGAR WATER
	10:32:00 PM						SHUT IN/WASHUP PUMPS AND LINES/DROP TOP PLUG
	10:37:00 PM	8.3	10.0			2800	BEGIN DISPLACEMENT USING FRESHWATER WITH BIOCIDE IN ALL
	10:44:00 PM	8.3	10.0	50	50	2800	FRESHWATER DISPLACEMENT
	10:49:00 PM	8.3	10.0	50	100	3550	FRESHWATER DISPLACEMENT
	10:56:00 PM	8.3	7.0	50	150	3850	FRESHWATER DISPLACEMENT
	11:04:00 PM	8.3	6.7	50	200	3850	FRESHWATER DISPLACEMENT
	11:11:00 PM	8.3	6.7	50	250	4000	FRESHWATER DISPLACEMENT
	11:14:00 PM	8.3	6.7	20	270	4000	FRESHWATER DISPLACEMENT/FIBER AT SHAKERS/WENT OVERBOARD
	11:20:00 PM	8.3	6.7	30	300	4000	FRESHWATER DISPLACEMENT
	11:27:00 PM	8.3	6.7	50	350	3800	FRESHWATER DISPLACEMENT
	11:28:00 PM	8.3	6.7	10	360	3800	FRESHWATER DISPLACEMENT/LEAD CEMENT INTERFACE VISISBLE AT SHAKERS
	11:31:00 PM	8.3	4.0	18	378	3200	FRESHWATER DISPLACEMENT/SLOWED RATE TO LAND PLUG
	11:35:00 PM	8.3	4.0	20	398	3700	LANDED PLUG GOING 500 OVER FCP ON CALCULATED DISPLACEMENT
	11:40:00 PM	8.3	1.0	19	19	5700	PUMP PACKER PROCEDURE
3/18/2024	12:19:00 AM	8.3					CHECK FLOATS/FLOATS HELD/8 BBLS BACK
	12:25:00 AM	8.3					RIG IN TO STACK/PUMP 100 BBLS TO CLEAN OUT BOP
	12:45:00 AM						RIG DOWN FLOOR AND EQUIPMENT/FINISH PAPER WORK
	1:30:00 AM						DEPART LOCATION

George 4N Production Pump Chart – Pressure / Rate / Density