

Pressure Blanket Procedure

Frac Blanket Wells - See Fig. 1 for Wellbore Layout

Guttersen C28-755 (05-123-48939)

Wells Fracing

Guttersen C28-745 (05-123-48931)

Guttersen C28-735 (05-123-48932)

Guttersen C28-725 (05-123-48933)

Guttersen C28-715 (05-123-48929)

Equipment on Location - See Fig 2. for Layout

8 frac tanks

Piping manifold for frac tanks (water storage)

1 chemical trailer treating freshwater w/ biocide to prevent bacterial fouling

1 Booster truck

2 Pump trucks (1 for backup)

Piping on discharge side of the pump truck

1 Frac tank for flow back

Volume, Pressure and Rate Consideration

Total freshwater volume 48,000-67,000 bbls target; 100,000 bbls permitted

Pumping rate 0.5-5 bbls/min

Max pressure at surface 3,000 psi (safety kill switch setup on pump and PSV do not allow pressure to exceed 3000 psi)

Frac gradient in the area is around 1.01 psi/ft

Maximum bottomhole pressure = 5,944 psi. ~3,000 psi at surface and 2,944 psi hydrostatic assuming no friction. Maximum gradient is 0.87 psi/ft which is below frac gradient.

Initial pressure on Wellhead

Tubing = 537 psi and Casing = 1018 psi

Timing

Pumping operation will continue no longer than 4 weeks (but approximate dates are 4/2/24-4/14/24).
Frac will start on approximately 4/2/24.

Procedure:

1. Rig up equipment on location (frac tank, flowback tank, biocide, pumps, piping)
2. Shut-in casing and open tubing.
3. Start pumping at 1 bbl/min through tubing (recording pressure, rate and volume)
4. If the pressure stays below 3000 psi after an hour, bump rate to 2-5 bbls/min (MAX RATE 5 BBLS/MIN AND PRESSURE 3000PSI)
5. Pump all water away (24 hour operation). Monitor Pressure on offset wells.
6. Shut well in after all volume pumped.
7. RDMO
8. Once offset well is finished fracing, bring well back online normally or by using green flowback

Fig. 1

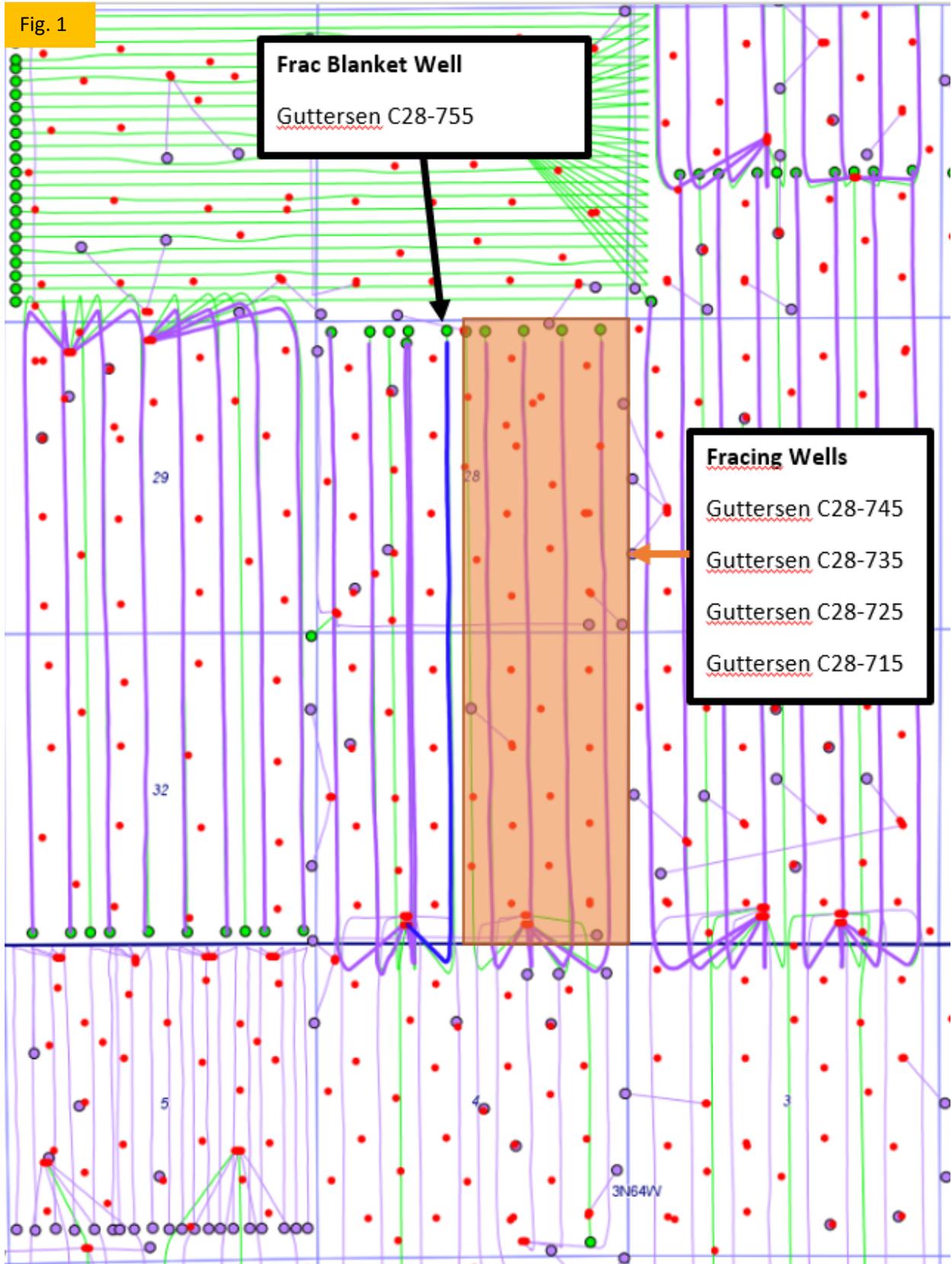
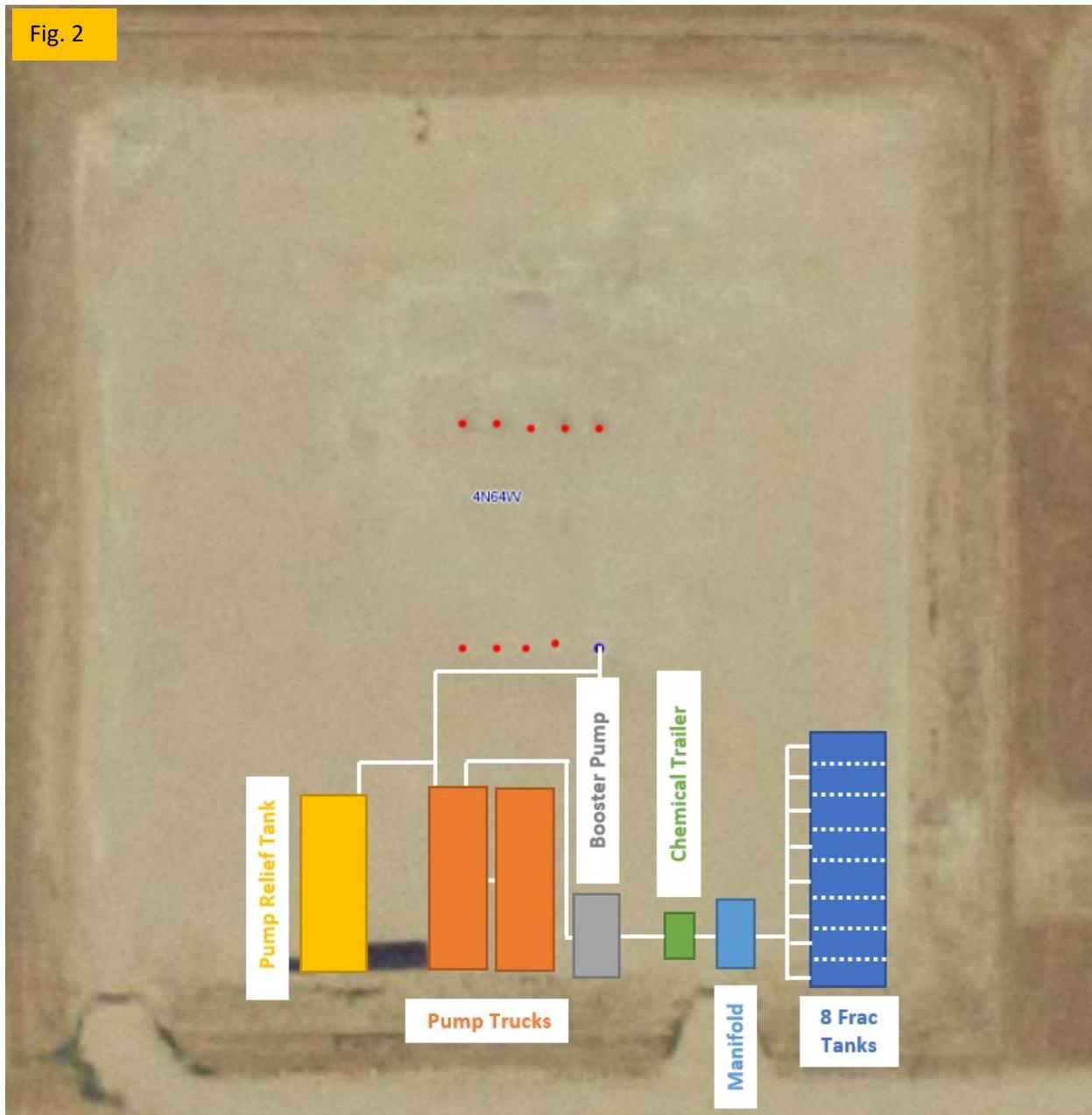


Fig. 2



Well Name: GUTTERSEN C28-755

Original Hole [Land]		Well Header							
MD (ftKB)	Vertical schematic (actual)	Surface UWI 0512348939		Asset Team		Production Tree Location Land			
		Original RKB Elevation (ft) 4,745.00	Original KB to Ground (ft) 21.00	Original Spud Date 8/15/2022		Abandon Date			
		Range			Well Sub-Status PR		High Press... N		
		Directions To Well CR53 & 36 west 0.21 of a mile, northwest 1.1 miles and west 0.1 of a mile into				Latitude (") 40.262618555	Longitude (") -104.55986721		
		Comment THERE IS AN EXCEPTION TO THE COGCC LOGGING REQUIREMENTS RULE 317.p. Acased-hole neutron log with gamma-ray log will be run from the kick-off point into the surface casing. See Sundry Doc. #402821799 dated 09/24/2021 for COA details.							
		Congressional Location							
		Quarter 3 NE	Quarter 4 NW	Section 33	Township 4	Twnshp N/S Dir N	Range 64	Range EW Dir W	
		Rig Operator							
		Rig/Unit Supervisor Josh Lewis							
		Daily Cost Summary							
		Sum of Field Est (Cost) 0							
		Wellbore Plug Back Total Depths							
		Date	PSTD (ftKB)	Method		Com			
		9/22/2022	17,052	Csg Tally		BALL SEAT SUB			
		Wellbore Sections							
		Section Des		Hole Size (in)		Top Depth (ftKB)	Btm Depth (ftKB)		
		CONDUCTOR		26		21.0	101.0		
		SURFACE		13 1/2		101.0	1,946.0		
		PRODUCTION		8 1/2		1,946.0	17,086.0		
		Zone Statuses							
Zone Name		Status Date			Status				
NIOBRARA		8/21/2023			Open				
Casing Strings									
Conductor, Actual, 101ftKB									
Casing Description		Run Date	OD (in)	Wt/Len (L...)	Grade	Top Depth...	Set Depth...		
Conductor		7/19/2022	16	36.94	A-52A	21	101		
Surface, Actual, 1936.4ftKB									
Casing Description		Run Date	OD (in)	Wt/Len (L...)	Grade	Top Depth...	Set Depth...		
Surface		8/17/2022	9 5/8	36.00	J-55	21	1936.4		
Production Casing, Actual, 17071.5ftKB									
Casing Description		Run Date	OD (in)	Wt/Len (L...)	Grade	Top Depth...	Set Depth...		
Production Casing		9/24/2022	5 1/2	17.00	P-110	21	17071.5		
Cement									
Des		Start Date		Top (ftKB)	Btm (ftKB)				
Conductor Cement		7/19/2022		21.0	101.0				
Surface Casing Cement		8/17/2022		21.0	1,936.4				
Production Casing Cement		9/24/2022		1,112.9	17,071.5				
Proposed Cement									
Des		Start Date		Top (ftKB)	Btm (ftKB)				
Tubing Strings									
Tubing Description		Run Date	String...	ID (in)	Wt (lb/ft)	Grade	Len (ft)		
TUBING - PRODUCTION		8/16/2023	2 3/8	2.000	4.70	L-80	7,104		
							17		
Tubing Components									
Item Des		OD (in)	Wt (lb/ft)	Grade	Jts	Len (ft)	Btm (ftKB)		
Tubing Hanger		7 1/8	4.70	N-80	1	0.50	21.5		
Tubing		2 3/8	4.70	L-80	198	6,567.01	6,588.5		
X-Nipple		2 3/8	4.70	N-80	1	0.90	6,589.4		
Tubing		2 3/8	4.70	L-80	16	530.54	7,120.0		
XN-Nipple		2 3/8	4.70	N-80	1	0.90	7,120.9		
Tubing Pup Joint		2 3/8	4.70	N-80	1	3.10	7,124.0		
Ceramic disc sub		2 3/8	4.70	N-80	1	0.80	7,124.8		
Mule Shoe		2 3/8	4.70	N-80	1	0.42	7,125.2		