

Permit Information:

Well Name: Grendel 2 State No. 302H

Location:

SL: 352' FSL & 815' FWL, Section 2, T-24-S, R-35-E, Lea Co., N.M.

BHL: 230' FNL & 1270' FWL, Section 2, T-24-S, R-35-E, Lea Co., N.M.

Casing Program:

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.5"	0 – 1,575'	13.375"	54.5#	J55	STC	1.125	1.25	1.60
12.25"	0 – 4,000'	9.625"	40#	J55	LTC	1.125	1.25	1.60
12.25"	4,000'-5,300'	9.625"	40#	HCK-55	LTC	1.125	1.25	1.60
8.75"	0'-14,723'	5.5"	17#	HCP-110	LTC	1.125	1.25	1.60

Cement Program:

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /ft	Slurry Description
1,575'	700	13.5	1.73	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	300	14.8	1.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
5,300' DV Tool w/ ECP @ 4,000'	400	10.8	3.68	Stage 1 Lead: Class C + 5% Gypsum + 30 pps SFA + 0.4% CPT-503P + 3.5% CPT-45 + 0.25% CPT-35 + 0.85% CPT-20 + 0.85% Citric Acid (TOC @ Surface)
	1250	15.6	1.20	Stage 1 Tail: Class H + 0.2% CPT-51 + 0.3% CPT-20
	100	12.7	1.90	Stage 2 Lead: Class C + 3% Salt + 0.6% Gel + 0.5% CPT-45 + 0.1% CPT-20 + 0.1% Citric Acid (TOC @ Surface)
	180	14.8	1.33	Stage 2 Tail: Class C + 0.2% CPT-19
14,723'	990	14.4	1.34	65:35 Class H + 0.2% C-20 + 0.75% C-41P + 0.05% CSA-1000 + 5% MagOx + 0.35% C-47B (TOC @ 4,800')

Mud Program:

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,575'	Fresh - Gel	8.6-8.8	28-34	N/c
1,575' – 5,300'	Brine	8.7-9.4	58-68	N/c - 6
5,300' – 9,420'	Brine	8.7-9.4	58-68	N/c - 6
9,420' – 14,723' Lateral	Oil Base	9.0-11.5	58-68	N/c - 6

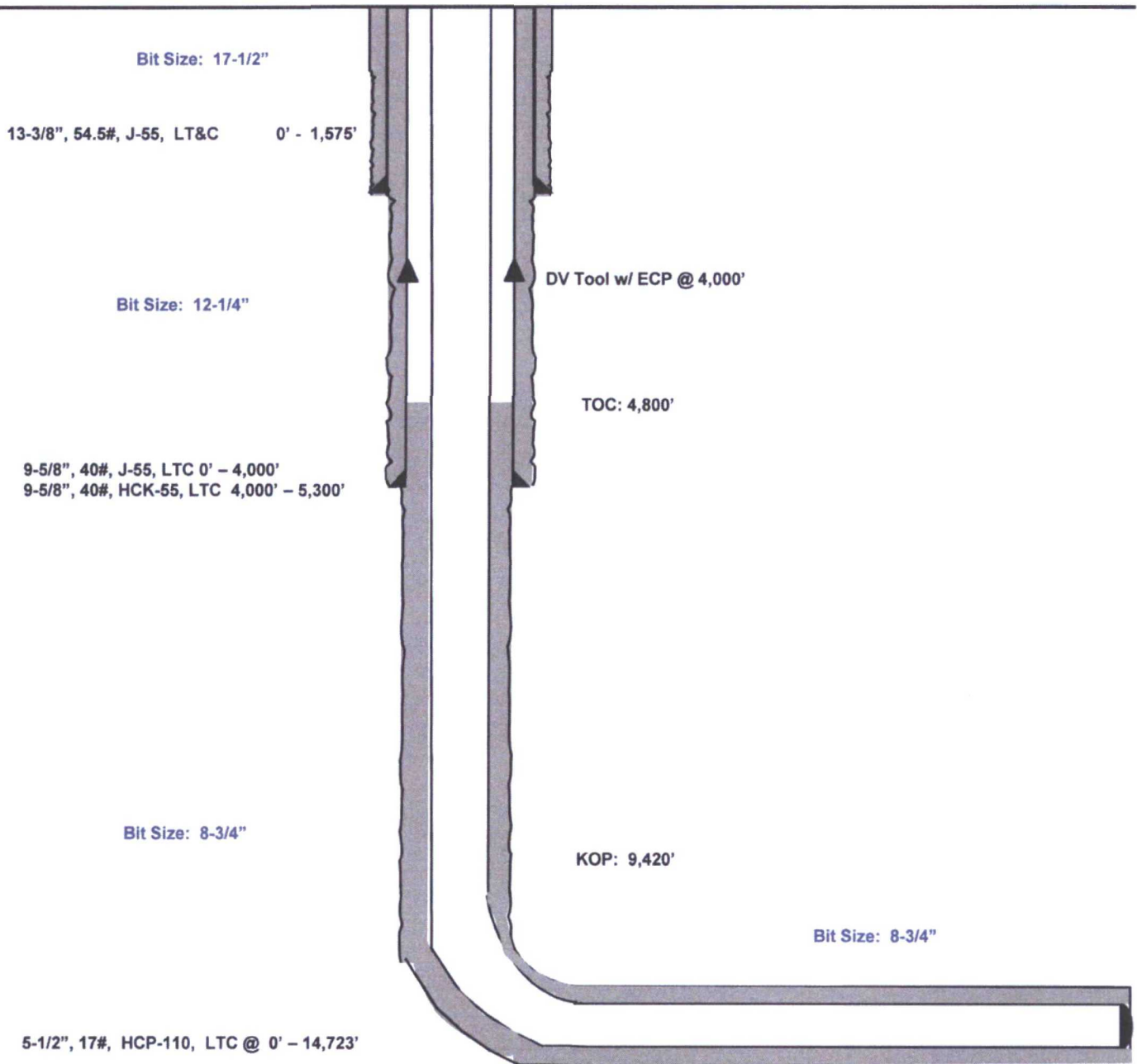
Grendel 2 State #302H

Lea County, New Mexico
Proposed Wellbore

352' FSL
815' FWL
Section 2
T-24-S, R-35-E

API: 30-025-*****

KB: 3,480'
GL: 3,455'



Lateral: 14,723' MD, 9,899' TVD

BH Location: 230' FNL & 1270' FWL
Section 2
T-24-S, R-35-E