

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMB-000393

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		7. If Unit or CA/Agreement, Name and/or No.
2. Name of Operator APACHE CORPORATION Contact: SORINA FLORES E-Mail: sorina.flores@apachecorp.com		8. Well Name and No. BLACK AND TAN 27 FEDERAL COM 302H
3a. Address 303 VETERANS AIRPARK LANE SUITE 3000 MIDLAND, TX 79705	3b. Phone No. (include area code) Ph: 432-818-1167	9. API Well No. 30-025-44018-00-X1
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 27 T20S R34E SWSW 220FSL 710FWL 32.537449 N Lat, 103.554367 W Lon		10. Field and Pool or Exploratory Area LEA-BONE SPRING
		11. County or Parish, State LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A PD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompletable horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletable in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

BLM-CO-1463 NATIONWIDE; NMB-000736

Apache respectfully request to change Prod TVD/MD. After reviewing logs, zone of higher quality deeper than anticipated. Apache also request to change hole size in the prod lateral. Listed is

*Approved depth: 15667.23' MD /10950' TVD
NEW PROD HOLE DEPTH: 15785.47.15' MD / 11065.54' TVD

*Approved Csg: Hole: 8.75" Top: 0' Btm MD: 15667.23' Btm TVD: 10950'

Csg: 5.5" P-110 17# Buttress New API standard

*Safety Factors: Collpse: 1.36 Burst: 1.33 Tensile: 2.04 Joint: 2.13

All previous COAs will apply. Additional COA is not required.

14. I hereby certify that the foregoing is true and correct. Electronic Submission #394436 verified by the BLM Well Information System For APACHE CORPORATION, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 12/04/2017 (18PP0286SE)	
Name (Printed/Typed) SORINA FLORES	Title SUBMITTING CONTACT
Signature (Electronic Submission)	Date 11/08/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By MUSTAFA HAQUE	Title PETROLEUM ENGINEER	Date 12/05/2017
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Hobbs

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

Additional data for EC transaction #394436 that would not fit on the form

32. Additional remarks, continued

NEW CSG: Hole: 8.75" Top: 0' Btm MD: 11464.95' Btm TVD: 11149'
Csg: 5.5" P-110 17# Buttress New API standard
Hole: 8.5" Top MD: 11464.95' TopTVD: 11149'
Btm MD: 15785.47' BtmTVD: 11065.54'
Csg: 5.5" P-110 17# Buttress New API standard
NEW SAFETY FACTORS: Collpse: 1.33 Burst: 1.33 Tensile: 2.02 Joint: 2.11

*Approved Prod Cmt (ONLY CHANGING THE FOLLOWING, EVERYTHING ELSE WILL REMAIN AS ON APPROVED APD):

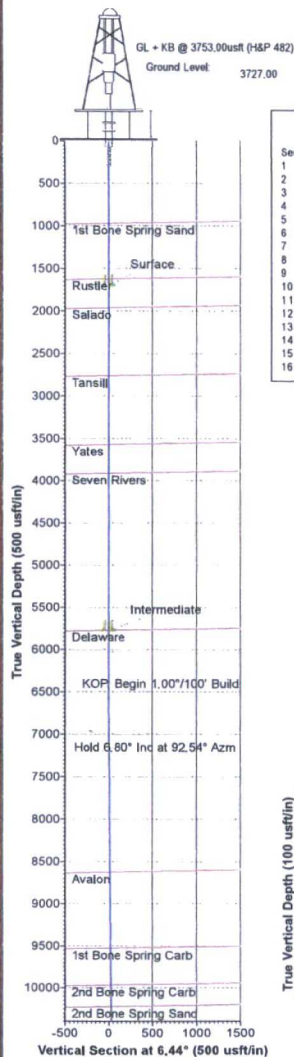
Single Stage Cmt Job:
Lead: TopMD: 3000' BtmMD: 10461.18' 925sx Volume: 1221
Tail: TopMD: 10461.18' BtmMD: 15667.23' 1103sx Volume: 1588.32
2nd Stage Cmt Job:
Lead: TopMD: 5830' BtmMD: 10461.18' 606sx Volume: 1405.92
Tail: TopMD: 10461.18' BtmMD: 15667.23' 1103sx Volume: 1588.32

NEW PROD CMT (ONLY CHANGING THE FOLLOWING, EVERYTHING ELSE WILL REMAIN AS ON APPROVED APD):

Single Stage Cmt Job:
Lead: TopMD: 3000' BtmMD: 10702.12' 960sx Volume: 2227.2
Tail: TopMD: 10702.12' BtmMD: 15785.47' 1000sx Volume: 1440
2nd Stage Cmt Job, 1st stage:
Lead: TopMD: 5830' BtmMD: 10702.12' 640sx Volume: 1476.84
Tail: TopMD: 10702.12' BtmMD: 15785.47' 1000sx Volume: 1440

*****SEE ATTACHED REVISED CSG DESIGN, CMT DESIGN, DIRECTIONAL PLAN

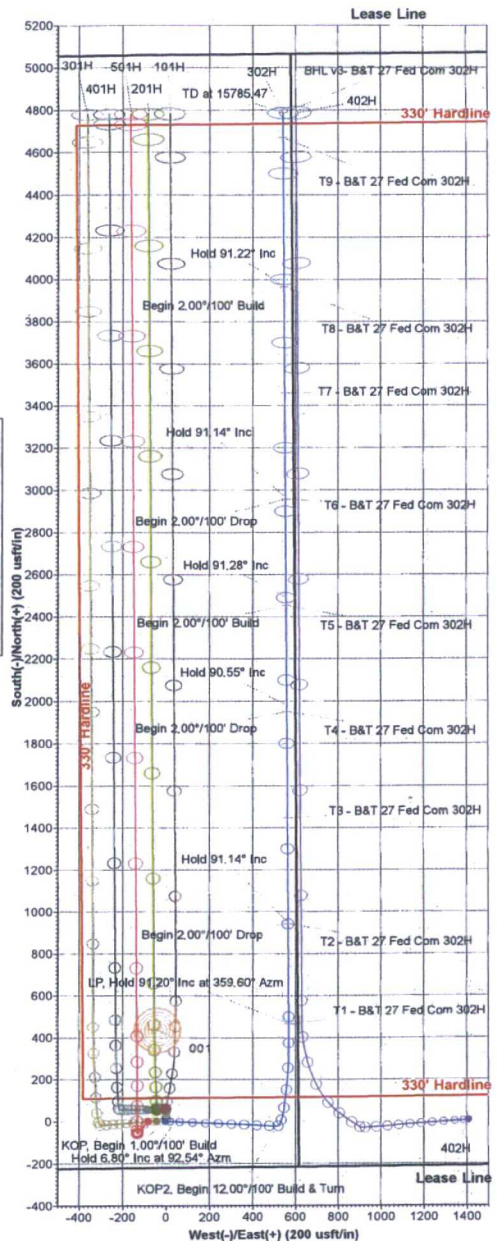
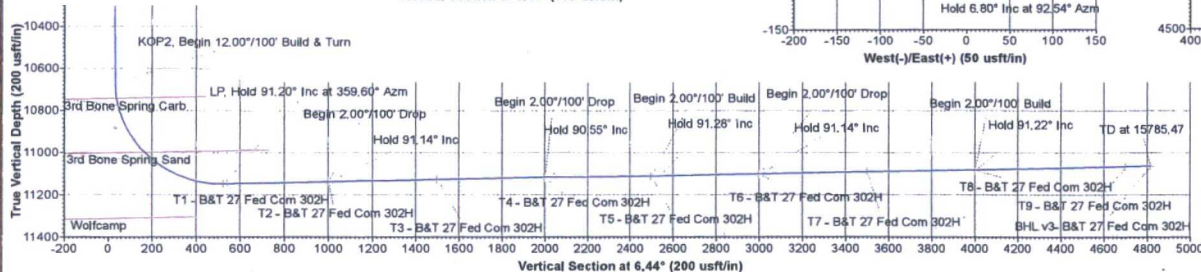
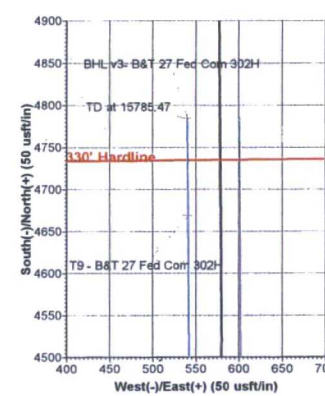
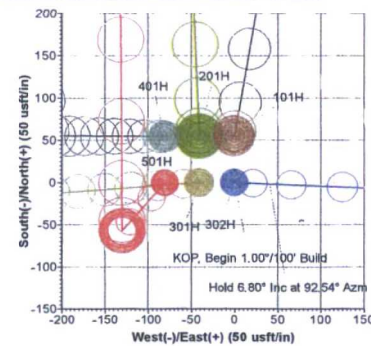
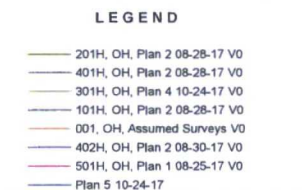
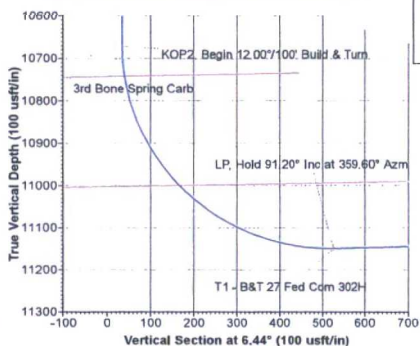
Project: Lea County, NM (NAD83 NME)
Site: Black & Tan 27 Federal Com
Well: 302H
Wellbore: OH
Design: Plan 5 10-24-17
Rig: H&P 482



WELL DETAILS														
GL = KB @ 3753.00usft (H&P 482)														
Ground Level 3727.00														
Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Deg	TFace	Vsect	Target	Annotation	Ground Level	Latitude	Longitude
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			3727.00	32° 32' 14.81288 N	103° 33' 15.70794 W
2	6000.00	0.00	0.00	6000.00	0.00	0.00	0.00	0.00	0.00			781392.90		
3	6679.78	6.80	92.54	6678.19	-1.78	40.24	1.00	92.54	2.74					
4	10702.12	6.80	92.54	10672.25	-22.85	515.88	0.00	0.00	35.18					
5	11464.95	91.20	359.60	11149.00	464.92	570.46	12.00	-92.77	528.00	T1 - B&T 27 Fed Com 302H	KOP, Begin 1.00°/100' Build			
6	11842.45	91.20	359.60	11139.00	942.31	567.12	0.00	0.00	1000.00	T2 - B&T 27 Fed Com 302H	Hold 6.80° Inc at 92.54° Azm			
7	11945.58	91.14	359.60	11138.94	945.44	567.10	2.00	-180.00	1003.10		KOP2, Begin 12.00°/100' Build & Turn			
8	12949.83	91.14	359.60	11119.00	1949.46	560.09	0.00	0.00	2000.00		LP, Hold 91.20° Inc at 359.60° Azm			
9	12979.11	90.55	359.60	11118.57	1978.74	559.89	2.00	180.00	2029.07	T4 - B&T 27 Fed Com 302H	Begin 2.00°/100' Drop			
10	13453.44	90.55	359.60	11114.00	2453.04	556.58	0.00	0.00	2500.00	T5 - B&T 27 Fed Com 302H	Hold 90.55° Inc			
11	13489.72	91.28	359.60	11113.42	2489.31	556.32	2.00	0.00	2536.02		Begin 2.00°/100' Build			
12	13957.15	91.28	359.60	11103.00	2956.62	553.06	0.00	0.00	3000.00	T6 - B&T 27 Fed Com 302H	Hold 91.28° Inc			
13	13964.17	91.14	359.60	11102.85	2963.63	553.01	2.00	180.00	3006.97		Hold 91.14° Inc			
14	14964.52	91.14	359.60	11083.00	3863.76	546.03	0.00	0.00	4000.00	T8 - B&T 27 Fed Com 302H	Begin 2.00°/100' Build			
15	14968.61	91.22	359.60	11082.92	3967.85	546.00	2.00	0.00	4004.05		Hold 91.22° Inc			
16	15785.47	91.22	359.60	11065.54	4784.50	540.30	0.00	0.00	4814.91	BHL v3 - B&T 27 Fed Com 302H	TD at 15785.47			

DESIGN TARGET DETAILS														
Name	TVD	+N/S	+E/W	North	East	Latitude	Longitude							
BHL v3 - B&T 27 Fed Com 302H	11065.54	4784.50	540.30	564916.50	781933.20	32° 32' 2.1464 N	103° 33' 8.9699 W							
T9 - B&T 27 Fed Com 302H	11098.00	4680.76	541.11	564800.76	781934.01	32° 32' 0.9694 N	103° 33' 8.9746 W							
T8 - B&T 27 Fed Com 302H	11083.00	3963.76	546.03	564095.76	781938.93	32° 32' 53.9930 N	103° 33' 8.9938 W							
T7 - B&T 27 Fed Com 302H	11093.00	3480.19	549.55	563592.19	781942.45	32° 32' 40.0103 N	103° 33' 8.9942 W							
T6 - B&T 27 Fed Com 302H	11103.00	2956.62	553.06	563088.62	781945.96	32° 32' 44.0274 N	103° 33' 8.9948 W							
T5 - B&T 27 Fed Com 302H	11114.00	2453.04	556.58	562585.04	781949.48	32° 32' 39.0448 N	103° 33' 8.9955 W							
T4 - B&T 27 Fed Com 302H	11119.00	1949.46	560.09	562081.46	781952.99	32° 32' 34.0615 N	103° 33' 8.9961 W							
T3 - B&T 27 Fed Com 302H	11129.00	1445.88	563.51	561577.88	781956.51	32° 32' 28.0786 N	103° 33' 9.0006 W							
T2 - B&T 27 Fed Com 302H	11139.00	942.31	567.12	561074.31	781960.02	32° 32' 24.9955 N	103° 33' 9.0027 W							
T1 - B&T 27 Fed Com 302H	11149.00	464.92	570.46	560596.92	781963.36	32° 32' 19.3781 N	103° 33' 9.0047 W							

CASING DETAILS				
TVD	MD	Name	Size	
1700.00	1700.00	Surface	13-3/8	
5780.00	5780.00	Intermediate	9-5/8	





Apache Corporation

Lea County, NM (NAD83 NME)

Black & Tan 27 Federal Com

302H

OH

Plan: Plan 5 10-24-17

Standard Planning Report

24 October, 2017



Database: Compass 5000 GCR
Company: Apache Corporation
Project: Lea County, NM (NAD83 NME)
Site: Black & Tan 27 Federal Com
Well: 302H
Wellbore: OH
Design: Plan 5 10-24-17

Local Co-ordinate Reference: Well 302H
TVD Reference: GL + KB @ 3753.00usft (H&P 482)
MD Reference: GL + KB @ 3753.00usft (H&P 482)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Lea County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Black & Tan 27 Federal Com		
Site Position:		Northing:	560,131.70 usft
From: Map		Easting:	781,352.90 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 32' 14.81280 N
		Longitude:	103° 33' 16.17520 W
		Grid Convergence:	0.42 °

Well	302H		
Well Position	+N-S	0.30 usft	Northing:
	+E-W	40.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 32' 14.81288 N
		Longitude:	103° 33' 15.70794 W
		Ground Level:	3,727.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	HDGM	8/28/2017	(°)
			6.75
			Dip Angle
			(°)
			60.52
			Field Strength
			(nT)
			48,308

Design	Plan 5 10-24-17		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			6.44

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N-S	+E-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,679.78	6.80	92.54	6,678.19	-1.78	40.24	1.00	1.00	0.00	92.54	
10,702.13	6.80	92.54	10,672.25	-22.85	515.88	0.00	0.00	0.00	0.00	
11,464.95	91.20	359.60	11,149.00	464.92	570.46	12.00	11.06	-12.18	-92.77	T1 - B&T 27 Fed Cr
11,942.46	91.20	359.60	11,139.00	942.31	567.12	0.00	0.00	0.00	0.00	T2 - B&T 27 Fed Cr
11,945.58	91.14	359.60	11,138.94	945.44	567.10	2.00	-2.00	0.00	-180.00	
12,949.83	91.14	359.60	11,119.00	1,949.46	560.09	0.00	0.00	0.00	0.00	T4 - B&T 27 Fed Cr
12,979.11	90.55	359.60	11,118.57	1,978.74	559.89	2.00	-2.00	0.00	180.00	
13,453.44	90.55	359.60	11,114.00	2,453.04	556.58	0.00	0.00	0.00	0.00	T5 - B&T 27 Fed Cr
13,489.72	91.28	359.60	11,113.42	2,489.31	556.32	2.00	2.00	0.00	0.00	
13,957.15	91.28	359.60	11,103.00	2,956.62	553.06	0.00	0.00	0.00	0.00	T6 - B&T 27 Fed Cr
13,964.17	91.14	359.60	11,102.85	2,963.63	553.01	2.00	-2.00	0.00	180.00	
14,964.52	91.14	359.60	11,083.00	3,963.76	546.03	0.00	0.00	0.00	0.00	T8 - B&T 27 Fed Cr
14,968.61	91.22	359.60	11,082.92	3,967.85	546.00	2.00	2.00	0.00	0.00	
15,785.47	91.22	359.60	11,065.54	4,784.50	540.30	0.00	0.00	0.00	0.00	BHL v3- B&T 27 Fe

Database: Compass 5000 GCR
Company: Apache Corporation
Project: Lea County, NM (NAD83 NME)
Site: Black & Tan 27 Federal Com
Well: 302H
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Local Co-ordinate Reference: Well 302H
TVD Reference: GL + KB @ 3753.00usft (H&P 482)
MD Reference: GL + KB @ 3753.00usft (H&P 482)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
970.00	0.00	0.00	970.00	0.00	0.00	0.00	0.00	0.00	0.00
1st Bone Spring Sand									
1,623.00	0.00	0.00	1,623.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface									
1,961.00	0.00	0.00	1,961.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
2,763.00	0.00	0.00	2,763.00	0.00	0.00	0.00	0.00	0.00	0.00
Tansill									
3,573.00	0.00	0.00	3,573.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates									
3,913.00	0.00	0.00	3,913.00	0.00	0.00	0.00	0.00	0.00	0.00
Seven Rivers									
5,773.00	0.00	0.00	5,773.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
5,780.00	0.00	0.00	5,780.00	0.00	0.00	0.00	0.00	0.00	0.00
Intermediate									
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 1.00°/100' Build									
6,100.00	1.00	92.54	6,100.00	-0.04	0.87	0.06	1.00	1.00	0.00
6,200.00	2.00	92.54	6,199.96	-0.15	3.49	0.24	1.00	1.00	0.00
6,300.00	3.00	92.54	6,299.86	-0.35	7.84	0.53	1.00	1.00	0.00
6,400.00	4.00	92.54	6,399.68	-0.62	13.94	0.95	1.00	1.00	0.00
6,500.00	5.00	92.54	6,499.37	-0.96	21.78	1.49	1.00	1.00	0.00
6,600.00	6.00	92.54	6,598.90	-1.39	31.36	2.14	1.00	1.00	0.00
6,679.78	6.80	92.54	6,678.19	-1.78	40.24	2.74	1.00	1.00	0.00
Hold 6.80° Inc at 92.54° Azm									
6,700.00	6.80	92.54	6,698.26	-1.89	42.63	2.91	0.00	0.00	0.00
6,800.00	6.80	92.54	6,797.56	-2.41	54.46	3.71	0.00	0.00	0.00
6,900.00	6.80	92.54	6,896.86	-2.94	66.28	4.52	0.00	0.00	0.00
7,000.00	6.80	92.54	6,996.16	-3.46	78.11	5.33	0.00	0.00	0.00
7,100.00	6.80	92.54	7,095.45	-3.98	89.93	6.13	0.00	0.00	0.00
7,200.00	6.80	92.54	7,194.75	-4.51	101.76	6.94	0.00	0.00	0.00
7,300.00	6.80	92.54	7,294.05	-5.03	113.58	7.75	0.00	0.00	0.00
7,400.00	6.80	92.54	7,393.34	-5.56	125.41	8.55	0.00	0.00	0.00
7,500.00	6.80	92.54	7,492.64	-6.08	137.23	9.36	0.00	0.00	0.00
7,600.00	6.80	92.54	7,591.94	-6.60	149.06	10.16	0.00	0.00	0.00
7,700.00	6.80	92.54	7,691.23	-7.13	160.88	10.97	0.00	0.00	0.00
7,800.00	6.80	92.54	7,790.53	-7.65	172.71	11.78	0.00	0.00	0.00
7,900.00	6.80	92.54	7,889.83	-8.17	184.53	12.58	0.00	0.00	0.00
8,000.00	6.80	92.54	7,989.13	-8.70	196.36	13.39	0.00	0.00	0.00
8,100.00	6.80	92.54	8,088.42	-9.22	208.18	14.20	0.00	0.00	0.00
8,200.00	6.80	92.54	8,187.72	-9.75	220.01	15.00	0.00	0.00	0.00
8,300.00	6.80	92.54	8,287.02	-10.27	231.83	15.81	0.00	0.00	0.00
8,400.00	6.80	92.54	8,386.31	-10.79	243.66	16.62	0.00	0.00	0.00
8,500.00	6.80	92.54	8,485.61	-11.32	255.48	17.42	0.00	0.00	0.00
8,600.00	6.80	92.54	8,584.91	-11.84	267.31	18.23	0.00	0.00	0.00
8,643.64	6.80	92.54	8,628.24	-12.07	272.47	18.58	0.00	0.00	0.00
Avalon									
8,700.00	6.80	92.54	8,684.20	-12.36	279.13	19.04	0.00	0.00	0.00

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Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,800.00	6.80	92.54	8,783.50	-12.89	290.96	19.84	0.00	0.00	0.00
8,900.00	6.80	92.54	8,882.80	-13.41	302.78	20.65	0.00	0.00	0.00
9,000.00	6.80	92.54	8,982.10	-13.94	314.61	21.45	0.00	0.00	0.00
9,100.00	6.80	92.54	9,081.39	-14.46	326.43	22.26	0.00	0.00	0.00
9,200.00	6.80	92.54	9,180.69	-14.98	338.26	23.07	0.00	0.00	0.00
9,300.00	6.80	92.54	9,279.99	-15.51	350.08	23.87	0.00	0.00	0.00
9,400.00	6.80	92.54	9,379.28	-16.03	361.91	24.68	0.00	0.00	0.00
9,500.00	6.80	92.54	9,478.58	-16.56	373.73	25.49	0.00	0.00	0.00
9,550.11	6.80	92.54	9,528.34	-16.82	379.66	25.89	0.00	0.00	0.00
1st Bone Spring Carb									
9,600.00	6.80	92.54	9,577.88	-17.08	385.56	26.29	0.00	0.00	0.00
9,700.00	6.80	92.54	9,677.17	-17.60	397.38	27.10	0.00	0.00	0.00
9,800.00	6.80	92.54	9,776.47	-18.13	409.21	27.91	0.00	0.00	0.00
9,900.00	6.80	92.54	9,875.77	-18.65	421.03	28.71	0.00	0.00	0.00
9,993.27	6.80	92.54	9,968.39	-19.14	432.06	29.46	0.00	0.00	0.00
2nd Bone Spring Carb									
10,000.00	6.80	92.54	9,975.07	-19.17	432.86	29.52	0.00	0.00	0.00
10,100.00	6.80	92.54	10,074.36	-19.70	444.68	30.33	0.00	0.00	0.00
10,200.00	6.80	92.54	10,173.66	-20.22	456.51	31.13	0.00	0.00	0.00
10,250.11	6.80	92.54	10,223.41	-20.48	462.43	31.54	0.00	0.00	0.00
2nd Bone Spring Sand									
10,300.00	6.80	92.54	10,272.96	-20.75	468.33	31.94	0.00	0.00	0.00
10,400.00	6.80	92.54	10,372.25	-21.27	480.16	32.74	0.00	0.00	0.00
10,500.00	6.80	92.54	10,471.55	-21.79	491.98	33.55	0.00	0.00	0.00
10,600.00	6.80	92.54	10,570.85	-22.32	503.81	34.36	0.00	0.00	0.00
10,700.00	6.80	92.54	10,670.14	-22.84	515.63	35.16	0.00	0.00	0.00
10,702.13	6.80	92.54	10,672.25	-22.85	515.88	35.18	0.00	0.00	0.00
KOP2, Begin 12.00°/100' Build & Turn									
10,773.99	10.70	38.79	10,743.38	-17.83	524.33	41.12	12.00	5.43	-74.79
3rd Bone Spring Carb									
10,800.00	13.26	30.10	10,768.82	-13.37	527.34	45.89	12.00	9.82	-33.42
10,900.00	24.33	15.01	10,863.39	16.56	538.46	76.88	12.00	11.07	-15.08
11,000.00	35.98	9.18	10,949.73	65.63	548.52	126.76	12.00	11.65	-5.83
11,067.14	43.89	6.85	11,001.18	108.27	554.46	169.81	12.00	11.79	-3.47
3rd Bone Spring Sand									
11,100.00	47.78	5.94	11,024.07	131.70	557.08	193.38	12.00	11.84	-2.76
11,200.00	59.65	3.74	11,083.14	211.88	563.75	273.80	12.00	11.87	-2.20
11,300.00	71.55	2.02	11,124.38	302.67	568.25	364.52	12.00	11.90	-1.72
11,400.00	83.46	0.52	11,145.98	400.09	570.39	461.57	12.00	11.91	-1.49
11,464.95	91.20	359.60	11,149.00	464.92	570.46	526.00	12.00	11.92	-1.42
LP, Hold 91.20° Inc at 359.60° Azm									
11,500.00	91.20	359.60	11,148.27	499.97	570.21	560.79	0.00	0.00	0.00
11,600.00	91.20	359.60	11,146.17	599.94	569.51	660.06	0.00	0.00	0.00
11,700.00	91.20	359.60	11,144.08	699.92	568.82	759.33	0.00	0.00	0.00
11,800.00	91.20	359.60	11,141.98	799.89	568.12	858.59	0.00	0.00	0.00
11,900.00	91.20	359.60	11,139.89	899.87	567.42	957.86	0.00	0.00	0.00
11,942.46	91.20	359.60	11,139.00	942.31	567.12	1,000.00	0.00	0.00	0.00
Begin 2.00°/100' Drop									
11,945.58	91.14	359.60	11,138.94	945.44	567.10	1,003.10	2.00	-2.00	0.00
Hold 91.14° Inc									
12,000.00	91.14	359.60	11,137.86	999.84	566.72	1,057.12	0.00	0.00	0.00
12,100.00	91.14	359.60	11,135.87	1,099.82	566.02	1,156.39	0.00	0.00	0.00
12,200.00	91.14	359.60	11,133.89	1,199.80	565.33	1,255.66	0.00	0.00	0.00

Database: Compass 5000 GCR
Company: Apache Corporation
Project: Lea County, NM (NAD83 NME)
Site: Black & Tan 27 Federal Com
Well: 302H
Wellbore: OH
Design: Plan 5 10-24-17

Local Co-ordinate Reference: Well 302H
TVD Reference: GL + KB @ 3753.00usft (H&P 482)
MD Reference: GL + KB @ 3753.00usft (H&P 482)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,300.00	91.14	359.60	11,131.90	1,299.78	564.63	1,354.93	0.00	0.00	0.00
12,400.00	91.14	359.60	11,129.92	1,399.76	563.93	1,454.20	0.00	0.00	0.00
12,500.00	91.14	359.60	11,127.93	1,499.73	563.23	1,553.46	0.00	0.00	0.00
12,600.00	91.14	359.60	11,125.95	1,599.71	562.53	1,652.73	0.00	0.00	0.00
12,700.00	91.14	359.60	11,123.96	1,699.69	561.84	1,752.00	0.00	0.00	0.00
12,800.00	91.14	359.60	11,121.97	1,799.67	561.14	1,851.27	0.00	0.00	0.00
12,900.00	91.14	359.60	11,119.99	1,899.65	560.44	1,950.54	0.00	0.00	0.00
12,949.83	91.14	359.60	11,119.00	1,949.46	560.09	2,000.00	0.00	0.00	0.00
Begin 2.00°/100' Drop									
12,979.11	90.55	359.60	11,118.57	1,978.74	559.89	2,029.07	2.00	-2.00	0.00
Hold 90.55° Inc									
13,000.00	90.55	359.60	11,118.37	1,999.63	559.74	2,049.81	0.00	0.00	0.00
13,100.00	90.55	359.60	11,117.40	2,099.62	559.04	2,149.09	0.00	0.00	0.00
13,200.00	90.55	359.60	11,116.44	2,199.61	558.35	2,248.38	0.00	0.00	0.00
13,300.00	90.55	359.60	11,115.48	2,299.61	557.65	2,347.66	0.00	0.00	0.00
13,400.00	90.55	359.60	11,114.51	2,399.60	556.95	2,446.94	0.00	0.00	0.00
13,453.44	90.55	359.60	11,114.00	2,453.04	556.58	2,500.00	0.00	0.00	0.00
Begin 2.00°/100' Build									
13,489.72	91.28	359.60	11,113.42	2,489.31	556.32	2,536.02	2.00	2.00	0.00
Hold 91.28° Inc									
13,500.00	91.28	359.60	11,113.19	2,499.59	556.25	2,546.22	0.00	0.00	0.00
13,600.00	91.28	359.60	11,110.96	2,599.56	555.55	2,645.48	0.00	0.00	0.00
13,700.00	91.28	359.60	11,108.73	2,699.53	554.86	2,744.75	0.00	0.00	0.00
13,800.00	91.28	359.60	11,106.50	2,799.51	554.16	2,844.01	0.00	0.00	0.00
13,900.00	91.28	359.60	11,104.27	2,899.48	553.46	2,943.27	0.00	0.00	0.00
13,957.15	91.28	359.60	11,103.00	2,956.62	553.06	3,000.00	0.00	0.00	0.00
Begin 2.00°/100' Drop									
13,964.17	91.14	359.60	11,102.85	2,963.63	553.01	3,006.97	2.00	-2.00	0.00
Hold 91.14° Inc									
14,000.00	91.14	359.60	11,102.14	2,999.45	552.76	3,042.54	0.00	0.00	0.00
14,100.00	91.14	359.60	11,100.16	3,099.43	552.06	3,141.81	0.00	0.00	0.00
14,200.00	91.14	359.60	11,098.17	3,199.41	551.37	3,241.07	0.00	0.00	0.00
14,300.00	91.14	359.60	11,096.19	3,299.39	550.67	3,340.34	0.00	0.00	0.00
14,400.00	91.14	359.60	11,094.20	3,399.37	549.97	3,439.61	0.00	0.00	0.00
14,500.00	91.14	359.60	11,092.22	3,499.34	549.27	3,538.88	0.00	0.00	0.00
14,600.00	91.14	359.60	11,090.23	3,599.32	548.57	3,638.15	0.00	0.00	0.00
14,700.00	91.14	359.60	11,088.25	3,699.30	547.88	3,737.41	0.00	0.00	0.00
14,800.00	91.14	359.60	11,086.27	3,799.28	547.18	3,836.68	0.00	0.00	0.00
14,900.00	91.14	359.60	11,084.28	3,899.25	546.48	3,935.95	0.00	0.00	0.00
14,964.52	91.14	359.60	11,083.00	3,963.76	546.03	4,000.00	0.00	0.00	0.00
Begin 2.00°/100' Build									
14,968.61	91.22	359.60	11,082.92	3,967.85	546.00	4,004.05	2.00	2.00	0.00
Hold 91.22° Inc									
15,000.00	91.22	359.60	11,082.25	3,999.23	545.78	4,035.22	0.00	0.00	0.00
15,100.00	91.22	359.60	11,080.12	4,099.21	545.08	4,134.48	0.00	0.00	0.00
15,200.00	91.22	359.60	11,077.99	4,199.18	544.39	4,233.75	0.00	0.00	0.00
15,300.00	91.22	359.60	11,075.87	4,299.16	543.69	4,333.01	0.00	0.00	0.00
15,400.00	91.22	359.60	11,073.74	4,399.13	542.99	4,432.28	0.00	0.00	0.00
15,500.00	91.22	359.60	11,071.61	4,499.11	542.29	4,531.54	0.00	0.00	0.00
15,600.00	91.22	359.60	11,069.49	4,599.08	541.59	4,630.81	0.00	0.00	0.00
15,700.00	91.22	359.60	11,067.36	4,699.06	540.90	4,730.07	0.00	0.00	0.00
15,785.47	91.22	359.60	11,065.54	4,784.50	540.30	4,814.91	0.00	0.00	0.00
TD at 15785.47									



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Apache Corporation
Project: Lea County, NM (NAD83 NME)
Site: Black & Tan 27 Federal Com
Well: 302H
Wellbore: OH
Design: Plan 5 10-24-17

Local Co-ordinate Reference: Well 302H
TVD Reference: GL + KB @ 3753.00usft (H&P 482)
MD Reference: GL + KB @ 3753.00usft (H&P 482)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL v3- B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,065.54	4,784.50	540.30	564,916.50	781,933.20	32° 33' 2.11464 N 103° 33' 8.98699 W	
T9 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,068.00	4,668.76	541.11	564,800.77	781,934.01	32° 33' 0.96942 N 103° 33' 8.98746 W	
T8 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,083.00	3,963.76	546.03	564,095.76	781,938.93	32° 32' 53.99330 N 103° 33' 8.99036 W	
T7 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,093.00	3,460.19	549.55	563,592.19	781,942.44	32° 32' 49.01039 N 103° 33' 8.99242 W	
T6 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,103.00	2,956.62	553.06	563,088.62	781,945.96	32° 32' 44.02748 N 103° 33' 8.99449 W	
T5 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,114.00	2,453.04	556.58	562,585.04	781,949.47	32° 32' 39.04448 N 103° 33' 8.99655 W	
T4 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,119.00	1,949.46	560.09	562,081.47	781,952.99	32° 32' 34.06157 N 103° 33' 8.99861 W	
T3 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,129.00	1,445.88	563.61	561,577.89	781,956.51	32° 32' 29.07856 N 103° 33' 9.00066 W	
T2 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,139.00	942.31	567.12	561,074.32	781,960.02	32° 32' 24.09565 N 103° 33' 9.00272 W	
T1 - B&T 27 Fed Com - plan hits target center - Point	0.00	0.00	11,149.00	464.92	570.46	560,596.93	781,963.35	32° 32' 19.37181 N 103° 33' 9.00467 W	

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,700.00	1,700.00	Surface	13-3/8	17-1/2
5,780.00	5,780.00	Intermediate	9-5/8	12-1/4

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North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
970.00	970.00	1st Bone Spring Sand		-1.00	359.60
1,623.00	1,623.00	Rustler		-1.00	359.60
1,961.00	1,961.00	Salado		-1.00	359.60
2,763.00	2,763.00	Tansill		-1.00	359.60
3,573.00	3,573.00	Yates		-1.00	359.60
3,913.00	3,913.00	Seven Rivers		-1.00	359.60
5,773.00	5,773.00	Delaware		-1.00	359.60
8,643.64	8,628.24	Avalon		-1.00	359.60
9,550.11	9,528.34	1st Bone Spring Carb		-1.00	359.60
9,993.27	9,968.39	2nd Bone Spring Carb		-1.00	359.60
10,250.11	10,223.41	2nd Bone Spring Sand		-1.00	359.60
10,773.99	10,743.38	3rd Bone Spring Carb		-1.00	359.60
11,067.14	11,001.18	3rd Bone Spring Sand		-1.00	359.60

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,000.00	6,000.00	0.00	0.00	KOP, Begin 1.00°/100' Build
6,679.78	6,678.19	-1.78	40.24	Hold 6.80° Inc at 92.54° Azm
10,702.13	10,672.25	-22.85	515.88	KOP2, Begin 12.00°/100' Build & Turn
11,464.95	11,149.00	464.92	570.46	LP, Hold 91.20° Inc at 359.60° Azm
11,942.46	11,139.00	942.31	567.12	Begin 2.00°/100' Drop
11,945.58	11,138.94	945.44	567.10	Hold 91.14° Inc
12,949.83	11,119.00	1,949.46	560.09	Begin 2.00°/100' Drop
12,979.11	11,118.57	1,978.74	559.89	Hold 90.55° Inc
13,453.44	11,114.00	2,453.04	556.58	Begin 2.00°/100' Build
13,489.72	11,113.42	2,489.31	556.32	Hold 91.28° Inc
13,957.15	11,103.00	2,956.62	553.06	Begin 2.00°/100' Drop
13,964.17	11,102.85	2,963.63	553.01	Hold 91.14° Inc
14,964.52	11,083.00	3,963.76	546.03	Begin 2.00°/100' Build
14,968.61	11,082.92	3,967.85	546.00	Hold 91.22° Inc
15,785.47	11,065.54	4,784.50	540.30	TD at 15785.47

BLACK & TAN 27 FED COM 302H
REVISED CMT_11.8.17

CEMENT: SURFACE

Stage Tool Depth: N/A

Lead:

Top MD of
Segment: 0

Btm MD of
Segment: 1285.47

Cmt Type: C

Cmt Additives: 4% Bentonite + 1% CaCl2

Quantity (sks): 650

Yield (cu/ft/sk): 1.73

Density (lbs/gal): 13.5

Volume (cu/ft): 1124.5

Percent OH Excess: 25%

Tail:

Top MD of
Segment: 1285.47

Btm MD of
Segment: 1700

Cmt Type: C

Cmt Additives: 1% CaCl2

Quantity (sks): 300

Yield (cu/ft/sk): 1.33

Density (lbs/gal): 14.8

Volume (cu/ft): 399

Percent OH Excess: 25%

CEMENT: INTERMEDIATE

Single Stage

Lead:

Top MD of
Segment: 0

Btm MD of
Segment: 5144.38

Cmt Type: C

Cmt Additives: 5% NaCl + 6% Bentonite + 2
lb/sk Kolseal + 0.125 lb/sk
Celloflake + 0.4% Retarder

Quantity (sks): 1043

Yield (cu/ft/sk): 1.885

Density (lbs/gal): 12.9

Volume (cu/ft): 1966.06

Percent OH Excess: 25%

Tail:Top MD of
Segment: 5144.38Btm MD of
Segment: 5780Cmt Type: CCmt Additives: 0.2% RetarderQuantity (sks): 200Yield (cu/ft/sk): 1.34 Volume (cu/ft): 268Density (lbs/gal): 14.8 Percent OH Excess: 25%**2 Stage Cement Job**

* DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DVT will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with 500psi compressive strength time for cmt will be onsite for review

*If lost circulation is encountered, Apache may 2-stage Interm csg. A DVT may be used in the 9-5/8" csg & ECP may be placed below DVT

1st Stage**Lead:**Top MD of
Segment: 3500Btm MD of
Segment: 5144.38Cmt Type: CCmt Additives: 5% NaCl + 6% Bentonite + 2
lb/sk Kolseal + 0.125 lb/sk
Celloflake + 0.4% RetarderQuantity (sks): 345Yield (cu/ft/sk): 1.885 Volume (cu/ft): 650.33Density (lbs/gal): 12.9 Percent OH Excess: 25%**Tail:**Top MD of
Segment: 5144.38Btm MD of
Segment: 5780Cmt Type: CCmt Additives: 0.3% RetarderQuantity (sks): 200Yield (cu/ft/sk): 1.34 Volume (cu/ft): 268Density (lbs/gal): 14.8 Percent OH Excess: 25%

Stage Tool / ECP Depth: ± 3500'

2nd Stage

Lead:

Top MD of
Segment: 0

Btm MD of
Segment: 2815.44

Cmt Type: C

Cmt Additives: 5% NaCl + 6% Bentonite

Quantity (sks): 565

Yield (cu/ft/sk): 1.868 Volume (cu/ft): 1055.42

Density (lbs/gal): 12.9 Percent OH Excess: 25%

Tail:

Top MD of
Segment: 2815.44

Btm MD of
Segment: 3500

Cmt Type: C

Cmt Additives: 0.3% Retarder

Quantity (sks): 200

Yield (cu/ft/sk): 1.34 Volume (cu/ft): 268

Density (lbs/gal): 14.8 Percent OH Excess: 25%

CEMENT: PRODUCTION

Single Stage

Lead:

Top MD of
Segment: 3000

Btm MD of
Segment: 10702.12

Cmt Type: H

Cmt Additives: 10% gel + 5% Salt

Quantity (sks): 960

Yield (cu/ft/sk): 2.32 Volume (cu/ft): 2227.2

Density (lbs/gal): 11.9 Percent OH Excess: 20%

Tail:

Top MD of
Segment: 10702.12

Btm MD of
Segment: 15785.47

Cmt Type: TXI LiteCmt Additives: 0.3% Fluid Loss + 0.2% RetarderQuantity (sks): 1000Yield (cu/ft/sk): 1.44 Volume (cu/ft): 1440Density (lbs/gal): 12.8 Percent OH Excess: 20%**2 Stage Cement Job**

* DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

*If lost circulation is encountered, Apache may 2-stage Interm csg. A DVT may be used in the 7" csg & ECP may be placed below DVT

1st Stage**Lead:**Top MD of
Segment: 5830Btm MD of
Segment: 10702.12Cmt Type: HCmt Additives: 10% gel + 5% SaltQuantity (sks): 640Yield (cu/ft/sk): 2.32 Volume (cu/ft): 1476.84Density (lbs/gal): 11.9 Percent OH Excess: 20%**Tail:**Top MD of
Segment: 10702.12Btm MD of
Segment: 15785.47Cmt Type: TXI LiteCmt Additives: 0.3% Fluid Loss + 0.2% RetarderQuantity (sks): 1000Yield (cu/ft/sk): 1.44 Volume (cu/ft): 1440Density (lbs/gal): 12.8 Percent OH Excess: 20%**Stage Tool / ECP Depth:** ± 5830'**2nd Stage****Lead:**

Top MD of
Segment: 3000

Btm MD of
Segment: 4810.33

Cmt Type: H

Cmt Additives: 10% gel + 5% Salt

Quantity (sks): 204

Yield (cu/ft/sk): 2.32 Volume (cu/ft): 473.28

Density (lbs/gal): 11.9 Percent OH Excess: 20%

Tail:

Top MD of
Segment: 4810.33

Btm MD of
Segment: 5830

Cmt Type: C

Cmt Additives: 0.3% Retarder

Quantity (sks): 200

Yield (cu/ft/sk): 1.34 Volume (cu/ft): 268

Density (lbs/gal): 14.8 Percent OH Excess: 20%

BLACK & TAN 27 FED COM 302H
REVISED CSG_11.8.17

String:		<u>SURFACE</u>			
Hole Size:	<u>17.5</u>				
Top Setting Depth (MD):	<u>0</u>	Top Setting Depth (TVD):	<u>0</u>	Btm setting depth (MD):	<u>1700</u>
				Btm setting depth (TVD):	<u>1700</u>
Size:	<u>13-3/8"</u>	Grade:	<u>J-55</u>	Weight (lbs/ft):	<u>54.5</u>
				Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	<u>Buttress</u>
Condition (New/Used):	<u>New</u>		Standard (API/Non-API):	<u>API</u>	
Tapered String (Y/N)?: <u>N</u>					
If yes, need spec attachment					
<u>Safety Factors</u>					
Collapse Design Safety Factor:		<u>2.15</u>	Burst Design Safety Factor:		<u>1.82</u>
Body Tensile Design Safety Factor type?:		<u>Dry/Buoyant</u>			
Body Tensile Design Safety Factor:		<u>3.79</u>			
Joint Tensile Design Safety Factor type?:		<u>Dry/Buoyant</u>			
Joint Tensile Design Safety Factor:		<u>4.04</u>			

String:		<u>INTERMEDIATE</u>			
Hole Size:	<u>12.25</u>				
Top Setting Depth (MD):	<u>0</u>	Top Setting Depth (TVD):	<u>0</u>	Btm setting depth (MD):	<u>900</u>
				Btm setting depth (TVD):	<u>900</u>

Size:	<u>9-5/8"</u>	Grade:	<u>J-55</u>	Weight (lbs/ft):	<u>40</u>	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	<u>Buttress</u>
Condition (New/Used):		<u>New</u>	Standard (API/Non-API):		<u>API</u>		
Tapered String (Y/N)?:		<u>N</u>	If yes, need spec attachment				
<u>Safety Factors</u>							
Collapse Design Safety Factor:		<u>5.37</u>	Burst Design Safety Factor:		<u>1.7</u>		
Body Tensile Design Safety Factor type?:		Dry/Buoyant		<u>Buoyant</u>			
Body Tensile Design Safety Factor:		<u>1.96</u>					
Joint Tensile Design Safety Factor type?:		Dry/Buoyant		<u>Buoyant</u>			
Joint Tensile Design Safety Factor:		<u>2.24</u>					
Top Setting Depth (MD):	<u>900</u>	Top Setting Depth (TVD):	<u>900</u>	Btm setting depth (MD):	<u>5780</u>	Btm setting depth (TVD):	<u>5780</u>
Size:	<u>9-5/8"</u>	Grade:	<u>J-55</u>	Weight (lbs/ft):	<u>40</u>	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	<u>LTC</u>
Condition (New/Used):		<u>New</u>	Standard (API/Non-API):		<u>API</u>		
Tapered String (Y/N)?:		<u>N</u>	If yes, need spec attachment				
<u>Safety Factors</u>							
Collapse Design Safety Factor:		<u>1.54</u>	Burst Design Safety Factor:		<u>1.87</u>		
Body Tensile Design Safety Factor type?:		Dry/Buoyant		<u>Buoyant</u>			
Body Tensile Design Safety Factor:		<u>2.15</u>					
Joint Tensile Design Safety Factor type?:		Dry/Buoyant		<u>Buoyant</u>			
Joint Tensile Design Safety Factor:		<u>1.8</u>					

String: PRODUCTION

Hole Size: 8.75

Top Setting Depth (MD):	<u>0</u>	Top Setting Depth (TVD):	<u>0</u>	Btm setting depth (MD):	<u>11464.95</u>	Btm setting depth (TVD):	<u>11149</u>
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Size:	<u>5-1/2"</u>	Grade:	<u>P-110</u>	Weight (lbs/ft):	<u>17</u>	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	<u>Buttress</u>
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Hole Size: 8.5

Top Setting Depth (MD):	<u>11464.95</u>	Top Setting Depth (TVD):	<u>11149</u>	Btm setting depth (MD):	<u>15785.47</u>	Btm setting depth (TVD):	<u>11065.54</u>
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Size:	<u>5-1/2"</u>	Grade:	<u>P-110</u>	Weight (lbs/ft):	<u>17</u>	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	<u>Buttress</u>
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Condition (New/Used): New Standard (API/Non-API): API

Safety Factors

Collapse Design Safety Factor: 1.33 Burst Design Safety Factor: 1.33

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant

Body Tensile Design Safety Factor: 2.02

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant

Joint Tensile Design Safety Factor: 2.11

Tapered String (Y/N)?: N

If yes, need spec attachment