

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 05 2018

RECEIVED

Apache Corporation

Eddy County, NM (NAD 83 NME)

Palmillo 14-15 State

208H

30-015-44669

OH

Plan: Plan 2 02-01-18

Standard Planning Report

01 February, 2018

Planning Report

Database:	USA Compass	Local Co-ordinate Reference:	Well 208H
Company:	Apache Corporation	TVD Reference:	RKB @ 3465.00usft (H&P 482)
Project:	Eddy County, NM (NAD 83 NME)	MD Reference:	RKB @ 3465.00usft (H&P 482)
Site:	Palmillo 14-15 State	North Reference:	Grid
Well:	208H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 02-01-18		

Project:	Eddy County, NM (NAD 83 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	Palmillo 14-15 State				
Site Position:		Northing:	601,823.50 usft	Latitude:	32° 39' 15.60896 N
From:	Map	Easting:	595,664.40 usft	Longitude:	104° 9' 24.52874 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.10 °

Well	208H					
Well Position	+N/-S	4,569.40 usft	Northing:	606,392.90 usft	Latitude:	32° 40' 0.81151 N
	+E/-W	794.80 usft	Easting:	596,459.20 usft	Longitude:	104° 9' 15.14169 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,439.00 usft	

Wellbore:	OH			
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Magnetic	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/31/2018	7.42	60.48	48,121.50000000

Design:	Plan 2 02-01-18			
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Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	269.37

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Drop Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,734.10	0.00	0.00	6,734.10	0.00	0.00	0.00	0.00	0.00	0.00	
7,641.90	90.78	269.50	7,307.00	-5.07	-580.74	10.00	10.00	0.00	269.50	
7,649.10	90.78	269.36	7,306.91	-5.14	-587.94	2.00	0.02	-2.00	-89.56	
10,356.39	90.78	269.36	7,270.00	-35.57	-3,294.80	0.00	0.00	0.00	0.00	T1v2 - Pamillo 14-1
10,357.85	90.81	269.36	7,269.98	-35.58	-3,296.26	2.00	2.00	0.00	0.00	
12,619.16	90.81	269.36	7,238.00	-61.00	-5,557.20	0.00	0.00	0.00	0.00	BHL - Pamillo 14-1

Planning Report

Database	USA Compass	Well 208H
Company	Apache Corporation	RKB @ 3465.00usft (H&P 482)
Location	Eddy County, NM (NAD 83 NME)	RKB @ 3465.00usft (H&P 482)
Site	Palmillo 14-15 State	Grid
Well	208H	Minimum Curvature
Wellbore	OH	
Drawn	Plan 2 02-01-18	

Measure	Depth	Interval	Interval	Interval	Interval	Interval	Interval	Interval	Interval
Depth	Interval	Interval	Interval	Interval	Interval	Interval	Interval	Interval	Interval
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
315.00	0.00	0.00	315.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
CSG									
624.00	0.00	0.00	624.00	0.00	0.00	0.00	0.00	0.00	0.00
Tan Sill									
835.00	0.00	0.00	835.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates									
1,207.00	0.00	0.00	1,207.00	0.00	0.00	0.00	0.00	0.00	0.00
Seven Rivers									
1,675.00	0.00	0.00	1,675.00	0.00	0.00	0.00	0.00	0.00	0.00
Queen									
2,015.00	0.00	0.00	2,015.00	0.00	0.00	0.00	0.00	0.00	0.00
Grayburg									
2,440.00	0.00	0.00	2,440.00	0.00	0.00	0.00	0.00	0.00	0.00
San Andres									
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
CSG									
6,335.00	0.00	0.00	6,335.00	0.00	0.00	0.00	0.00	0.00	0.00
1st Bone Spring Sand									
6,483.00	0.00	0.00	6,483.00	0.00	0.00	0.00	0.00	0.00	0.00
2nd Bone Spring Carb									
6,734.10	0.00	0.00	6,734.10	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 10.00°/100' Build									
6,800.00	6.59	269.50	6,799.85	-0.03	-3.79	3.79	10.00	10.00	0.00
6,900.00	16.59	269.50	6,897.69	-0.21	-23.85	23.85	10.00	10.00	0.00
7,000.00	26.59	269.50	6,990.56	-0.53	-60.60	60.60	10.00	10.00	0.00
7,100.00	36.59	269.50	7,075.63	-0.99	-112.91	112.92	10.00	10.00	0.00
7,200.00	46.59	269.50	7,150.33	-1.56	-179.21	179.21	10.00	10.00	0.00
7,221.79	48.77	269.50	7,165.00	-1.70	-195.32	195.33	10.00	10.00	0.00
2nd Bone Spring Sand									
7,300.00	56.59	269.50	7,212.38	-2.25	-257.46	257.47	10.00	10.00	0.00
7,400.00	66.59	269.50	7,259.90	-3.01	-345.30	345.32	10.00	10.00	0.00
7,474.60	74.05	269.50	7,285.00	-3.63	-415.49	415.51	10.00	10.00	0.00
Landing Top									
7,500.00	76.59	269.50	7,291.44	-3.84	-440.06	440.08	10.00	10.00	0.00
7,600.00	86.59	269.50	7,306.04	-4.70	-538.86	538.88	10.00	10.00	0.00
7,641.90	90.78	269.50	7,307.00	-5.07	-580.74	580.76	10.00	10.00	0.00
LP, Hold 90.78° Inc, Begin 2.00°/100' Turn									
7,649.10	90.78	269.36	7,306.91	-5.14	-587.93	587.96	2.00	0.02	-2.00
Hold 269.36° Azm									
7,700.00	90.78	269.36	7,306.21	-5.71	-638.83	638.85	0.00	0.00	0.00
7,800.00	90.78	269.36	7,304.85	-6.84	-738.81	738.84	0.00	0.00	0.00
7,900.00	90.78	269.36	7,303.49	-7.96	-838.80	838.83	0.00	0.00	0.00
8,000.00	90.78	269.36	7,302.12	-9.08	-938.78	938.82	0.00	0.00	0.00
8,100.00	90.78	269.36	7,300.76	-10.21	-1,038.76	1,038.81	0.00	0.00	0.00
8,200.00	90.78	269.36	7,299.40	-11.33	-1,138.75	1,138.80	0.00	0.00	0.00
8,300.00	90.78	269.36	7,298.03	-12.46	-1,238.73	1,238.79	0.00	0.00	0.00
8,400.00	90.78	269.36	7,296.67	-13.58	-1,338.72	1,338.79	0.00	0.00	0.00
8,500.00	90.78	269.36	7,295.31	-14.70	-1,438.70	1,438.78	0.00	0.00	0.00
8,600.00	90.78	269.36	7,293.94	-15.83	-1,538.69	1,538.77	0.00	0.00	0.00

Planning Report

Client:	USA Compass	Well:	Well 208H
Company:	Apache Corporation	Depth:	RKB @ 3465.00usft (H&P 482)
Project:	Eddy County, NM (NAD 83 NME)	Location:	RKB @ 3465.00usft (H&P 482)
Site:	Palmillo 14-15 State	Grid:	Grid
Well:	208H	Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 02-01-18		

Measured Depth (ft)	True Vertical Depth (ft)	Altitude (ft)	Depth (ft)	INCL (deg)	HEAV (ft)	Vertical (ft)	Depth (ft)	Bulk Rate (ft/1000ft)	Min Rate (ft/1000ft)
8,700.00	90.78	269.36	7,292.58	-16.95	-1,638.67	1,638.76	0.00	0.00	0.00
8,800.00	90.78	269.36	7,291.22	-18.08	-1,738.65	1,738.75	0.00	0.00	0.00
8,900.00	90.78	269.36	7,289.85	-19.20	-1,838.64	1,838.74	0.00	0.00	0.00
9,000.00	90.78	269.36	7,288.49	-20.32	-1,938.62	1,938.73	0.00	0.00	0.00
9,100.00	90.78	269.36	7,287.13	-21.45	-2,038.61	2,038.72	0.00	0.00	0.00
9,200.00	90.78	269.36	7,285.76	-22.57	-2,138.59	2,138.71	0.00	0.00	0.00
9,300.00	90.78	269.36	7,284.40	-23.69	-2,238.58	2,238.70	0.00	0.00	0.00
9,400.00	90.78	269.36	7,283.04	-24.82	-2,338.56	2,338.69	0.00	0.00	0.00
9,500.00	90.78	269.36	7,281.67	-25.94	-2,438.55	2,438.68	0.00	0.00	0.00
9,600.00	90.78	269.36	7,280.31	-27.07	-2,538.53	2,538.67	0.00	0.00	0.00
9,700.00	90.78	269.36	7,278.95	-28.19	-2,638.51	2,638.66	0.00	0.00	0.00
9,800.00	90.78	269.36	7,277.59	-29.31	-2,738.50	2,738.66	0.00	0.00	0.00
9,900.00	90.78	269.36	7,276.22	-30.44	-2,838.48	2,838.65	0.00	0.00	0.00
10,000.00	90.78	269.36	7,274.86	-31.56	-2,938.47	2,938.64	0.00	0.00	0.00
10,100.00	90.78	269.36	7,273.50	-32.69	-3,038.45	3,038.63	0.00	0.00	0.00
10,200.00	90.78	269.36	7,272.13	-33.81	-3,138.44	3,138.62	0.00	0.00	0.00
10,300.00	90.78	269.36	7,270.77	-34.93	-3,238.42	3,238.61	0.00	0.00	0.00
10,356.39	90.78	269.36	7,270.00	-35.57	-3,294.80	3,294.99	0.00	0.00	0.00
Begin 2.00°/100' Build									
10,357.85	90.81	269.36	7,269.98	-35.58	-3,296.26	3,296.45	2.00	2.00	0.00
Hold 90.81° Inc									
10,400.00	90.81	269.36	7,269.38	-36.06	-3,338.40	3,338.60	0.00	0.00	0.00
10,500.00	90.81	269.36	7,267.97	-37.18	-3,438.39	3,438.59	0.00	0.00	0.00
10,600.00	90.81	269.36	7,266.56	-38.31	-3,538.37	3,538.58	0.00	0.00	0.00
10,700.00	90.81	269.36	7,265.14	-39.43	-3,638.36	3,638.57	0.00	0.00	0.00
10,800.00	90.81	269.36	7,263.73	-40.55	-3,738.34	3,738.56	0.00	0.00	0.00
10,900.00	90.81	269.36	7,262.31	-41.68	-3,838.32	3,838.55	0.00	0.00	0.00
11,000.00	90.81	269.36	7,260.90	-42.80	-3,938.31	3,938.54	0.00	0.00	0.00
11,100.00	90.81	269.36	7,259.48	-43.93	-4,038.29	4,038.53	0.00	0.00	0.00
11,200.00	90.81	269.36	7,258.07	-45.05	-4,138.27	4,138.52	0.00	0.00	0.00
11,300.00	90.81	269.36	7,256.66	-46.17	-4,238.26	4,238.51	0.00	0.00	0.00
11,400.00	90.81	269.36	7,255.24	-47.30	-4,338.24	4,338.50	0.00	0.00	0.00
11,500.00	90.81	269.36	7,253.83	-48.42	-4,438.23	4,438.49	0.00	0.00	0.00
11,600.00	90.81	269.36	7,252.41	-49.55	-4,538.21	4,538.48	0.00	0.00	0.00
11,700.00	90.81	269.36	7,251.00	-50.67	-4,638.19	4,638.47	0.00	0.00	0.00
11,800.00	90.81	269.36	7,249.58	-51.79	-4,738.18	4,738.46	0.00	0.00	0.00
11,900.00	90.81	269.36	7,248.17	-52.92	-4,838.16	4,838.45	0.00	0.00	0.00
12,000.00	90.81	269.36	7,246.76	-54.04	-4,938.14	4,938.44	0.00	0.00	0.00
12,100.00	90.81	269.36	7,245.34	-55.17	-5,038.13	5,038.43	0.00	0.00	0.00
12,200.00	90.81	269.36	7,243.93	-56.29	-5,138.11	5,138.42	0.00	0.00	0.00
12,300.00	90.81	269.36	7,242.51	-57.41	-5,238.09	5,238.41	0.00	0.00	0.00
12,400.00	90.81	269.36	7,241.10	-58.54	-5,338.08	5,338.40	0.00	0.00	0.00
12,500.00	90.81	269.36	7,239.69	-59.66	-5,438.06	5,438.39	0.00	0.00	0.00
12,600.00	90.81	269.36	7,238.27	-60.78	-5,538.05	5,538.38	0.00	0.00	0.00
12,619.16	90.81	269.36	7,238.00	-61.00	-5,557.20	5,557.53	0.00	0.00	0.00
TD at 12619.16									

Planning Report

Database:	USA Compass	Local Coordinates Reference:	Well 208H
Company:	Apache Corporation	Survey Method:	RKB @ 3465.00usft (H&P 482)
Project:	Eddy County, NM (NAD 83 NME)	MD Reference:	RKB @ 3465.00usft (H&P 482)
Site:	Palmillo 14-15 State	North Reference:	Grid
Well:	208H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 02-01-18		

Design Points										
Point Name	Horizontal Target	Dip Angle	Dip Dir.	TVD	N/A	+B&W	Northing	Easting	Latitude	Longitude
BHL - Pamillo 14-158 - plan hits target center - Point	0.00	0.00	7,238.00	-61.00	-5,557.20		606,331.90	590,902.00	32° 40' 0.29601 N 04° 10' 20.15517 W	
T1v2 - Pamillo 14-158 - plan hits target center - Point	0.00	0.00	7,270.00	-35.57	-3,294.80		606,357.34	593,164.40	32° 40' 0.51293 N 104° 9' 53.68748 W	
FTP - Pamillo 14-158 - plan misses target center by 1.23usft at 7631.08usft MD (7307.05 TVD, -4.97 N, -569.91 E) - Point	0.00	0.00	7,307.00	-6.20	-569.90		606,386.70	595,889.30	32° 40' 0.75963 N 104° 9' 21.80894 W	

Casing Points				
Horizontal Depth (usft)	Vertical Depth (usft)	CSG	Casing Diameter (in)	Hold Diameter (in)
400.00	400.00	CSG		
3,000.00	3,000.00	CSG		

Formation					
Horizontal Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction
315.00	315.00	Top Salt		0.00	
624.00	624.00	Tan Sill		0.00	
835.00	835.00	Yates		0.00	
1,207.00	1,207.00	Seven Rivers		0.00	
1,675.00	1,675.00	Queen		0.00	
2,015.00	2,015.00	Grayburg		0.00	
2,440.00	2,440.00	San Andres		0.00	
6,335.00	6,335.00	1st Bone Spring Sand		0.00	
6,483.00	6,483.00	2nd Bone Spring Carb		0.00	
7,221.79	7,165.00	2nd Bone Spring Sand		0.00	
7,474.60	7,285.00	Landing Top		0.00	

Plan Annotations					
Horizontal Depth (usft)	Vertical Depth (usft)	N/A	+B&W	Comments	
6,734.10	6,734.10	0.00	0.00	KOP, Begin 10.00°/100' Build	
7,641.90	7,307.00	-5.07	-580.74	LP, Hold 90.78° Inc, Begin 2.00°/100' Turn	
7,649.10	7,306.91	-5.14	-587.93	Hold 269.36° Azm	
10,356.39	7,270.00	-35.57	-3,294.80	Begin 2.00°/100' Build	
10,357.85	7,269.98	-35.58	-3,296.26	Hold 90.81° Inc	
12,619.16	7,238.00	-61.00	-5,557.20	TD at 12619.16	

Project: Eddy County, NM (NAD 83 NME)
 Site: Palmillo 14-15 State
 Well: 208H
 Wellbore: OH
 Design: Plan 2 02-01-18
 Rig: H&P 482



Accurate to Grid
 Magnetic North: -0.10°
 Magnetic North: 7.32°
 Strength: 48121.5nT
 Dip Angle: 80.48°
 Declination: 10.10°
 Model: HDGM

WELL DETAILS

Well	Ground Level	Latitude	Longitude
208H	5439.00	32° 40' 08.151" N	104° 9' 15.14169" W
208H	5439.00	32° 40' 08.151" N	104° 9' 15.14169" W

SECTION DETAILS

Sec	MD	Inc	AS	TVD	ASW	Dip	TF	VS	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 10.00' 100' Build
2	6734.10	0.00	0.00	6734.10	0.00	0.00	0.00	0.00	0.00	LP Hold 90.78° Inc. Begin 2.00' 100' Turn
3	7641.90	90.78	289.50	7307.00	-3.07	-580.74	10.00	289.50	590.78	Hold 259.35° Azm
4	7648.10	90.78	289.50	7308.91	-3.14	-587.84	2.00	48.55	597.95	Hold 259.35° Azm
5	10525.38	90.78	289.50	7308.91	-3.14	-587.84	2.00	48.55	597.95	Hold 259.35° Azm
6	10525.38	90.78	289.50	7308.91	-3.14	-587.84	2.00	48.55	597.95	Hold 259.35° Azm
7	12819.18	90.81	289.38	7238.00	-61.00	-5557.20	0.00	0.00	5557.53	BHL - Palmillo 14-15 State Com 208H TD at 12819.18

DESIGN TARGET DETAILS

Name	TVD	ASW	AS	Latitude	Longitude
BHL - Palmillo 14-15 State Com 208H	7238.00	-61.00	-5557.20	32° 40' 02.901" N	104° 10' 20.1551" W
T1V2 - Palmillo 14-15 State Com 208H	7270.00	-55.57	-5354.80	32° 40' 07.293" N	104° 9' 53.8748" W
FTP - Palmillo 14-15 State Com 208H	7307.00	-42.00	-569.50	32° 40' 07.5963" N	104° 9' 21.8693" W

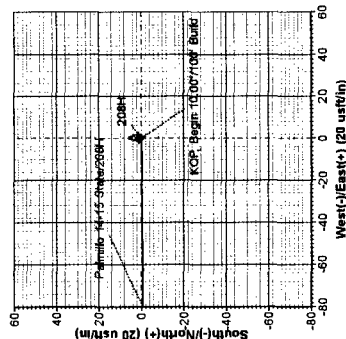
TVD	ASW	AS	Time	Size
402.00	400.00	CSG		
3000.00	3000.00	CSG		

FORMATION TOP DETAILS

MDPath	Top	Base	Depth	Dip
1515.00	1515.00	1515.00	0.00	0.00
825.00	825.00	825.00	0.00	0.00
835.00	835.00	835.00	0.00	0.00
1207.00	1207.00	1207.00	0.00	0.00
1675.00	1675.00	1675.00	0.00	0.00
2015.00	2015.00	2015.00	0.00	0.00
2015.00	2015.00	2015.00	0.00	0.00
6335.00	6335.00	6335.00	0.00	0.00
6463.00	6463.00	6463.00	0.00	0.00
7185.00	7185.00	7185.00	0.00	0.00
7221.75	7221.75	7221.75	0.00	0.00
7474.90	7474.90	7474.90	0.00	0.00

LEGEND

- 159. OH, OH V0
- 1. OH, Surveys V0
- 2. OH, Surveys V0
- 4H, WBL/Job #1411413, Surveys (Pinner 28) V0
- Plan 2 02-01-18



RKB @ 3465.00usft (H&P 482)
 Ground Level 3439.00

