



Ameredev Operating, LLC

**Lea County, NM (NAD83 NME)
(Nandina Fed) Sec-31_T-25-S_R-36-E
Nandina Fed Com 25-36-31#115H**

OWB

Plan: Plan #2

Standard Planning Report

26 June, 2018





Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

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	(Nandina Fed) Sec-31_T-25-S_R-36-E				
Site Position:		Northing:	394,412.00 usft	Latitude:	32.0801272
From:	Map	Easting:	860,517.00 usft	Longitude:	-103.3028096
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	Nandina Fed Com 25-36-31 #115H					
Well Position	+N/-S	-1.0 usft	Northing:	394,411.00 usft	Latitude:	32.0801266
	+E/-W	-80.0 usft	Easting:	860,437.00 usft	Longitude:	-103.3030679
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,014.0 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2018/04/25	6.72	59.96	47,795.67675955

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.28

Plan Survey Tool Program	Date	2018/06/25		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	22,274.2	Plan #2 (OWB)	MWD
			MWD - Standard	



Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,160.1	3.20	149.04	2,160.0	-3.8	2.3	2.00	2.00	0.00	149.04	
6,176.4	3.20	149.04	6,170.0	-196.2	117.7	0.00	0.00	0.00	0.00	
6,336.4	0.00	0.00	6,330.0	-200.0	120.0	2.00	-2.00	0.00	180.00	
11,568.4	0.00	0.00	11,562.0	-200.0	120.0	0.00	0.00	0.00	0.00	
12,468.4	90.00	349.20	12,135.0	362.8	12.6	10.00	10.00	0.00	349.20	
12,980.6	90.00	359.44	12,135.0	871.8	-38.0	2.00	0.00	2.00	90.00	
22,144.2	90.00	359.44	12,135.0	10,035.0	-127.0	0.00	0.00	0.00	0.00	LTP (Nandina Fed (
22,274.3	90.00	359.44	12,135.0	10,165.0	-128.3	0.00	0.00	0.00	0.00	PBHL (Nandina Fec

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,068.0	0.00	0.00	1,068.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,508.0	0.00	0.00	1,508.0	0.0	0.0	0.0	0.00	0.00	0.00
Salado									
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
BUILD - 2.00									
2,100.0	2.00	149.04	2,100.0	-1.5	0.9	-1.5	2.00	2.00	0.00
2,160.1	3.20	149.04	2,160.0	-3.8	2.3	-3.9	2.00	2.00	0.00
HOLD - 4016.3 at 2160.1 MD									
2,200.0	3.20	149.04	2,199.9	-5.7	3.4	-5.8	0.00	0.00	0.00
2,300.0	3.20	149.04	2,299.7	-10.5	6.3	-10.6	0.00	0.00	0.00
2,400.0	3.20	149.04	2,399.5	-15.3	9.2	-15.4	0.00	0.00	0.00
2,500.0	3.20	149.04	2,499.4	-20.1	12.1	-20.3	0.00	0.00	0.00
2,600.0	3.20	149.04	2,599.2	-24.9	14.9	-25.1	0.00	0.00	0.00
2,700.0	3.20	149.04	2,699.1	-29.7	17.8	-29.9	0.00	0.00	0.00
2,800.0	3.20	149.04	2,798.9	-34.5	20.7	-34.7	0.00	0.00	0.00
2,900.0	3.20	149.04	2,898.8	-39.3	23.6	-39.6	0.00	0.00	0.00
3,000.0	3.20	149.04	2,998.6	-44.1	26.4	-44.4	0.00	0.00	0.00
3,100.0	3.20	149.04	3,098.4	-48.8	29.3	-49.2	0.00	0.00	0.00
3,200.0	3.20	149.04	3,198.3	-53.6	32.2	-54.0	0.00	0.00	0.00
3,235.8	3.20	149.04	3,234.0	-55.3	33.2	-55.8	0.00	0.00	0.00
Tansill									
3,300.0	3.20	149.04	3,298.1	-58.4	35.1	-58.9	0.00	0.00	0.00
3,400.0	3.20	149.04	3,398.0	-63.2	37.9	-63.7	0.00	0.00	0.00
3,500.0	3.20	149.04	3,497.8	-68.0	40.8	-68.5	0.00	0.00	0.00
3,600.0	3.20	149.04	3,597.7	-72.8	43.7	-73.3	0.00	0.00	0.00
3,700.0	3.20	149.04	3,697.5	-77.6	46.5	-78.2	0.00	0.00	0.00
3,800.0	3.20	149.04	3,797.4	-82.4	49.4	-83.0	0.00	0.00	0.00
3,900.0	3.20	149.04	3,897.2	-87.2	52.3	-87.8	0.00	0.00	0.00
4,000.0	3.20	149.04	3,997.0	-91.9	55.2	-92.6	0.00	0.00	0.00
4,100.0	3.20	149.04	4,096.9	-96.7	58.0	-97.5	0.00	0.00	0.00
4,200.0	3.20	149.04	4,196.7	-101.5	60.9	-102.3	0.00	0.00	0.00
4,300.0	3.20	149.04	4,296.6	-106.3	63.8	-107.1	0.00	0.00	0.00
4,400.0	3.20	149.04	4,396.4	-111.1	66.7	-111.9	0.00	0.00	0.00

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

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)
4,500.0	3.20	149.04	4,496.3	-115.9	69.5	-116.8	0.00	0.00	0.00
4,600.0	3.20	149.04	4,596.1	-120.7	72.4	-121.6	0.00	0.00	0.00
4,700.0	3.20	149.04	4,696.0	-125.5	75.3	-126.4	0.00	0.00	0.00
4,800.0	3.20	149.04	4,795.8	-130.3	78.2	-131.2	0.00	0.00	0.00
4,900.0	3.20	149.04	4,895.6	-135.0	81.0	-136.1	0.00	0.00	0.00
5,000.0	3.20	149.04	4,995.5	-139.8	83.9	-140.9	0.00	0.00	0.00
5,038.6	3.20	149.04	5,034.0	-141.7	85.0	-142.7	0.00	0.00	0.00
Lamar									
5,073.6	3.20	149.04	5,069.0	-143.4	86.0	-144.4	0.00	0.00	0.00
Bell Canyon									
5,088.7	3.20	149.04	5,084.0	-144.1	86.4	-145.2	0.00	0.00	0.00
9.625									
5,100.0	3.20	149.04	5,095.3	-144.6	86.8	-145.7	0.00	0.00	0.00
5,200.0	3.20	149.04	5,195.2	-149.4	89.6	-150.5	0.00	0.00	0.00
5,300.0	3.20	149.04	5,295.0	-154.2	92.5	-155.4	0.00	0.00	0.00
5,400.0	3.20	149.04	5,394.9	-159.0	95.4	-160.2	0.00	0.00	0.00
5,500.0	3.20	149.04	5,494.7	-163.8	98.3	-165.0	0.00	0.00	0.00
5,600.0	3.20	149.04	5,594.5	-168.6	101.1	-169.8	0.00	0.00	0.00
5,700.0	3.20	149.04	5,694.4	-173.4	104.0	-174.7	0.00	0.00	0.00
5,800.0	3.20	149.04	5,794.2	-178.1	106.9	-179.5	0.00	0.00	0.00
5,900.0	3.20	149.04	5,894.1	-182.9	109.8	-184.3	0.00	0.00	0.00
6,000.0	3.20	149.04	5,993.9	-187.7	112.6	-189.1	0.00	0.00	0.00
6,100.0	3.20	149.04	6,093.8	-192.5	115.5	-193.9	0.00	0.00	0.00
6,176.4	3.20	149.04	6,170.0	-196.2	117.7	-197.6	0.00	0.00	0.00
DROP - 2.00									
6,200.0	2.73	149.04	6,193.6	-197.2	118.3	-198.7	2.00	-2.00	0.00
6,300.0	0.73	149.04	6,293.6	-199.8	119.9	-201.3	2.00	-2.00	0.00
6,336.4	0.00	0.00	6,330.0	-200.0	120.0	-201.5	2.00	-2.00	0.00
HOLD - 5232.0 at 6336.4 MD									
6,400.0	0.00	0.00	6,393.6	-200.0	120.0	-201.5	0.00	0.00	0.00
6,500.0	0.00	0.00	6,493.6	-200.0	120.0	-201.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,593.6	-200.0	120.0	-201.5	0.00	0.00	0.00
6,700.0	0.00	0.00	6,693.6	-200.0	120.0	-201.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,793.6	-200.0	120.0	-201.5	0.00	0.00	0.00
6,900.0	0.00	0.00	6,893.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,993.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,100.0	0.00	0.00	7,093.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,115.4	0.00	0.00	7,109.0	-200.0	120.0	-201.5	0.00	0.00	0.00
Brushy Canyon									
7,200.0	0.00	0.00	7,193.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,300.0	0.00	0.00	7,293.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,400.0	0.00	0.00	7,393.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,500.0	0.00	0.00	7,493.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,600.0	0.00	0.00	7,593.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,700.0	0.00	0.00	7,693.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,800.0	0.00	0.00	7,793.6	-200.0	120.0	-201.5	0.00	0.00	0.00
7,900.0	0.00	0.00	7,893.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,000.0	0.00	0.00	7,993.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,100.0	0.00	0.00	8,093.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,200.0	0.00	0.00	8,193.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,300.0	0.00	0.00	8,293.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,341.4	0.00	0.00	8,335.0	-200.0	120.0	-201.5	0.00	0.00	0.00
Bone Spring Lime									

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

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)
8,400.0	0.00	0.00	8,393.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,500.0	0.00	0.00	8,493.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,600.0	0.00	0.00	8,593.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,700.0	0.00	0.00	8,693.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,800.0	0.00	0.00	8,793.6	-200.0	120.0	-201.5	0.00	0.00	0.00
8,900.0	0.00	0.00	8,893.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,000.0	0.00	0.00	8,993.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,100.0	0.00	0.00	9,093.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,200.0	0.00	0.00	9,193.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,300.0	0.00	0.00	9,293.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,400.0	0.00	0.00	9,393.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,500.0	0.00	0.00	9,493.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,600.0	0.00	0.00	9,593.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,700.0	0.00	0.00	9,693.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,717.4	0.00	0.00	9,711.0	-200.0	120.0	-201.5	0.00	0.00	0.00
First Bone Spring									
9,800.0	0.00	0.00	9,793.6	-200.0	120.0	-201.5	0.00	0.00	0.00
9,900.0	0.00	0.00	9,893.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,000.0	0.00	0.00	9,993.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,100.0	0.00	0.00	10,093.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,200.0	0.00	0.00	10,193.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,275.4	0.00	0.00	10,269.0	-200.0	120.0	-201.5	0.00	0.00	0.00
Second Bone Spring									
10,300.0	0.00	0.00	10,293.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,400.0	0.00	0.00	10,393.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,500.0	0.00	0.00	10,493.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,600.0	0.00	0.00	10,593.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,700.0	0.00	0.00	10,693.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,800.0	0.00	0.00	10,793.6	-200.0	120.0	-201.5	0.00	0.00	0.00
10,861.4	0.00	0.00	10,855.0	-200.0	120.0	-201.5	0.00	0.00	0.00
Third Bone Spring Upper									
10,900.0	0.00	0.00	10,893.6	-200.0	120.0	-201.5	0.00	0.00	0.00
11,000.0	0.00	0.00	10,993.6	-200.0	120.0	-201.5	0.00	0.00	0.00
11,100.0	0.00	0.00	11,093.6	-200.0	120.0	-201.5	0.00	0.00	0.00
11,200.0	0.00	0.00	11,193.6	-200.0	120.0	-201.5	0.00	0.00	0.00
11,300.0	0.00	0.00	11,293.6	-200.0	120.0	-201.5	0.00	0.00	0.00
11,400.0	0.00	0.00	11,393.6	-200.0	120.0	-201.5	0.00	0.00	0.00
11,460.4	0.00	0.00	11,454.0	-200.0	120.0	-201.5	0.00	0.00	0.00
Third Bone Spring									
11,500.0	0.00	0.00	11,493.6	-200.0	120.0	-201.5	0.00	0.00	0.00
11,568.4	0.00	0.00	11,562.0	-200.0	120.0	-201.5	0.00	0.00	0.00
KOP - BUILD - 10.00 - 10566' FNL, 2172' FEL									
11,600.0	3.16	349.20	11,593.5	-199.1	119.8	-200.6	10.00	10.00	0.00
FTP (Nandina Fed Com 25-36-31 #105H)									
11,650.0	8.16	349.20	11,643.3	-194.3	118.9	-195.8	10.00	10.00	0.00
11,700.0	13.16	349.20	11,692.4	-185.2	117.2	-186.7	10.00	10.00	0.00
11,727.5	15.90	349.20	11,719.0	-178.5	115.9	-179.9	10.00	10.00	0.00
Wolfcamp									
11,750.0	18.16	349.20	11,740.5	-172.0	114.7	-173.4	10.00	10.00	0.00
11,800.0	23.16	349.20	11,787.3	-154.7	111.4	-156.0	10.00	10.00	0.00
11,850.0	28.16	349.20	11,832.4	-133.4	107.3	-134.7	10.00	10.00	0.00
11,872.5	30.41	349.20	11,852.0	-122.6	105.2	-123.9	10.00	10.00	0.00
7.625									

Database: EDM5000
 Company: Ameredev Operating, LLC
 Project: Lea County, NM (NAD83 NME)
 Site: (Nandina Fed) Sec-31_T-25-S_R-36-E
 Well: Nandina Fed Com 25-36-31 #115H
 Wellbore: OWB
 Design: Plan #2

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Nandina Fed Com 25-36-31 #115H
 KB @ 3041.0usft (H&P 616)
 KB @ 3041.0usft (H&P 616)
 Grid
 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)
11,900.0	33.16	349.20	11,875.4	-108.4	102.5	-109.6	10.00	10.00	0.00
11,950.0	38.16	349.20	11,916.0	-79.7	97.1	-81.0	10.00	10.00	0.00
12,000.0	43.16	349.20	11,953.9	-47.8	91.0	-48.9	10.00	10.00	0.00
12,050.0	48.16	349.20	11,988.8	-12.6	84.3	-13.7	10.00	10.00	0.00
12,100.0	53.16	349.20	12,020.5	25.3	77.0	24.4	10.00	10.00	0.00
12,150.0	58.16	349.20	12,048.7	65.9	69.3	65.0	10.00	10.00	0.00
12,200.0	63.16	349.20	12,073.2	108.7	61.1	107.9	10.00	10.00	0.00
12,229.9	66.14	349.20	12,086.0	135.2	56.1	134.5	10.00	10.00	0.00
Wolfcamp B									
12,250.0	68.16	349.20	12,093.8	153.4	52.6	152.7	10.00	10.00	0.00
12,256.4	68.79	349.20	12,096.2	159.2	51.5	158.6	10.00	10.00	0.00
FTP (Nandina Fed Com 25-36-31 #115H)									
12,300.0	73.16	349.20	12,110.4	199.7	43.7	199.2	10.00	10.00	0.00
12,350.0	78.16	349.20	12,122.8	247.3	34.7	246.8	10.00	10.00	0.00
12,400.0	83.16	349.20	12,130.9	295.7	25.4	295.4	10.00	10.00	0.00
12,450.0	88.16	349.20	12,134.7	344.7	16.1	344.5	10.00	10.00	0.00
12,468.4	90.00	349.20	12,135.0	362.8	12.6	362.6	10.00	10.00	0.00
EOC/TURN - DLS 2.00 TFO 90.00									
12,500.0	90.00	349.83	12,135.0	393.8	6.9	393.7	2.00	0.00	2.00
12,600.0	90.00	351.83	12,135.0	492.6	-9.0	492.6	2.00	0.00	2.00
12,700.0	90.00	353.83	12,135.0	591.8	-21.5	592.0	2.00	0.00	2.00
12,800.0	90.00	355.83	12,135.0	691.4	-30.5	691.7	2.00	0.00	2.00
12,900.0	90.00	357.83	12,135.0	791.2	-36.1	791.6	2.00	0.00	2.00
12,980.6	90.00	359.44	12,135.0	871.8	-38.0	872.2	2.00	0.00	2.00
HOLD - 9163.6 at 12980.6 MD									
13,000.0	90.00	359.44	12,135.0	891.2	-38.2	891.6	0.00	0.00	0.00
13,100.0	90.00	359.44	12,135.0	991.2	-39.1	991.6	0.00	0.00	0.00
13,200.0	90.00	359.44	12,135.0	1,091.2	-40.1	1,091.6	0.00	0.00	0.00
13,229.5	90.00	359.44	12,135.0	1,120.7	-40.4	1,121.1	0.00	0.00	0.00
Section 31 1320' FSL - 9245' FNL, 2318' FEL									
13,300.0	90.00	359.44	12,135.0	1,191.2	-41.1	1,191.6	0.00	0.00	0.00
13,400.0	90.00	359.44	12,135.0	1,291.2	-42.0	1,291.6	0.00	0.00	0.00
13,500.0	90.00	359.44	12,135.0	1,391.2	-43.0	1,391.6	0.00	0.00	0.00
13,600.0	90.00	359.44	12,135.0	1,491.2	-44.0	1,491.6	0.00	0.00	0.00
13,700.0	90.00	359.44	12,135.0	1,591.1	-45.0	1,591.6	0.00	0.00	0.00
13,800.0	90.00	359.44	12,135.0	1,691.1	-45.9	1,691.6	0.00	0.00	0.00
13,900.0	90.00	359.44	12,135.0	1,791.1	-46.9	1,791.6	0.00	0.00	0.00
14,000.0	90.00	359.44	12,135.0	1,891.1	-47.9	1,891.6	0.00	0.00	0.00
14,100.0	90.00	359.44	12,135.0	1,991.1	-48.8	1,991.6	0.00	0.00	0.00
14,200.0	90.00	359.44	12,135.0	2,091.1	-49.8	2,091.6	0.00	0.00	0.00
14,300.0	90.00	359.44	12,135.0	2,191.1	-50.8	2,191.6	0.00	0.00	0.00
14,400.0	90.00	359.44	12,135.0	2,291.1	-51.8	2,291.6	0.00	0.00	0.00
14,500.0	90.00	359.44	12,135.0	2,391.1	-52.7	2,391.6	0.00	0.00	0.00
14,549.5	90.00	359.44	12,135.0	2,440.6	-53.2	2,441.1	0.00	0.00	0.00
Section 31 2640' FSL - 7926' FNL, 2318' FEL									
14,600.0	90.00	359.44	12,135.0	2,491.1	-53.7	2,491.6	0.00	0.00	0.00
14,700.0	90.00	359.44	12,135.0	2,591.1	-54.7	2,591.6	0.00	0.00	0.00
14,800.0	90.00	359.44	12,135.0	2,691.1	-55.6	2,691.6	0.00	0.00	0.00
14,900.0	90.00	359.44	12,135.0	2,791.1	-56.6	2,791.6	0.00	0.00	0.00
15,000.0	90.00	359.44	12,135.0	2,891.1	-57.6	2,891.6	0.00	0.00	0.00
15,100.0	90.00	359.44	12,135.0	2,991.1	-58.6	2,991.6	0.00	0.00	0.00
15,200.0	90.00	359.44	12,135.0	3,091.1	-59.5	3,091.6	0.00	0.00	0.00
15,300.0	90.00	359.44	12,135.0	3,191.1	-60.5	3,191.6	0.00	0.00	0.00

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

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)
15,400.0	90.00	359.44	12,135.0	3,291.1	-61.5	3,291.6	0.00	0.00	0.00
15,500.0	90.00	359.44	12,135.0	3,391.1	-62.4	3,391.6	0.00	0.00	0.00
15,600.0	90.00	359.44	12,135.0	3,491.1	-63.4	3,491.6	0.00	0.00	0.00
15,700.0	90.00	359.44	12,135.0	3,591.1	-64.4	3,591.6	0.00	0.00	0.00
15,800.0	90.00	359.44	12,135.0	3,691.0	-65.4	3,691.6	0.00	0.00	0.00
15,900.0	90.00	359.44	12,135.0	3,791.0	-66.3	3,791.6	0.00	0.00	0.00
16,000.0	90.00	359.44	12,135.0	3,891.0	-67.3	3,891.6	0.00	0.00	0.00
16,100.0	90.00	359.44	12,135.0	3,991.0	-68.3	3,991.6	0.00	0.00	0.00
16,200.0	90.00	359.44	12,135.0	4,091.0	-69.2	4,091.6	0.00	0.00	0.00
16,300.0	90.00	359.44	12,135.0	4,191.0	-70.2	4,191.6	0.00	0.00	0.00
16,400.0	90.00	359.44	12,135.0	4,291.0	-71.2	4,291.6	0.00	0.00	0.00
16,500.0	90.00	359.44	12,135.0	4,391.0	-72.2	4,391.6	0.00	0.00	0.00
16,600.0	90.00	359.44	12,135.0	4,491.0	-73.1	4,491.6	0.00	0.00	0.00
16,700.0	90.00	359.44	12,135.0	4,591.0	-74.1	4,591.6	0.00	0.00	0.00
16,800.0	90.00	359.44	12,135.0	4,691.0	-75.1	4,691.6	0.00	0.00	0.00
16,900.0	90.00	359.44	12,135.0	4,791.0	-76.0	4,791.6	0.00	0.00	0.00
17,000.0	90.00	359.44	12,135.0	4,891.0	-77.0	4,891.6	0.00	0.00	0.00
17,100.0	90.00	359.44	12,135.0	4,991.0	-78.0	4,991.6	0.00	0.00	0.00
17,188.1	90.00	359.44	12,135.0	5,079.1	-78.8	5,079.7	0.00	0.00	0.00
Section 31 & Cross - 5287' FNL, 2318' FEL									
17,200.0	90.00	359.44	12,135.0	5,091.0	-79.0	5,091.6	0.00	0.00	0.00
17,300.0	90.00	359.44	12,135.0	5,191.0	-79.9	5,191.6	0.00	0.00	0.00
17,400.0	90.00	359.44	12,135.0	5,291.0	-80.9	5,291.6	0.00	0.00	0.00
17,500.0	90.00	359.44	12,135.0	5,391.0	-81.9	5,391.6	0.00	0.00	0.00
17,600.0	90.00	359.44	12,135.0	5,491.0	-82.8	5,491.6	0.00	0.00	0.00
17,700.0	90.00	359.44	12,135.0	5,591.0	-83.8	5,591.6	0.00	0.00	0.00
17,800.0	90.00	359.44	12,135.0	5,691.0	-84.8	5,691.6	0.00	0.00	0.00
17,900.0	90.00	359.44	12,135.0	5,791.0	-85.8	5,791.6	0.00	0.00	0.00
18,000.0	90.00	359.44	12,135.0	5,890.9	-86.7	5,891.6	0.00	0.00	0.00
18,100.0	90.00	359.44	12,135.0	5,990.9	-87.7	5,991.6	0.00	0.00	0.00
18,200.0	90.00	359.44	12,135.0	6,090.9	-88.7	6,091.6	0.00	0.00	0.00
18,300.0	90.00	359.44	12,135.0	6,190.9	-89.7	6,191.6	0.00	0.00	0.00
18,400.0	90.00	359.44	12,135.0	6,290.9	-90.6	6,291.6	0.00	0.00	0.00
18,500.0	90.00	359.44	12,135.0	6,390.9	-91.6	6,391.6	0.00	0.00	0.00
18,508.1	90.00	359.44	12,135.0	6,399.0	-91.7	6,399.7	0.00	0.00	0.00
Section 30 1320' FEL - 3967' FNL, 2318' FEL									
18,600.0	90.00	359.44	12,135.0	6,490.9	-92.6	6,491.6	0.00	0.00	0.00
18,700.0	90.00	359.44	12,135.0	6,590.9	-93.5	6,591.6	0.00	0.00	0.00
18,800.0	90.00	359.44	12,135.0	6,690.9	-94.5	6,691.6	0.00	0.00	0.00
18,900.0	90.00	359.44	12,135.0	6,790.9	-95.5	6,791.6	0.00	0.00	0.00
19,000.0	90.00	359.44	12,135.0	6,890.9	-96.5	6,891.6	0.00	0.00	0.00
19,100.0	90.00	359.44	12,135.0	6,990.9	-97.4	6,991.6	0.00	0.00	0.00
19,200.0	90.00	359.44	12,135.0	7,090.9	-98.4	7,091.6	0.00	0.00	0.00
19,300.0	90.00	359.44	12,135.0	7,190.9	-99.4	7,191.6	0.00	0.00	0.00
19,400.0	90.00	359.44	12,135.0	7,290.9	-100.3	7,291.6	0.00	0.00	0.00
19,500.0	90.00	359.44	12,135.0	7,390.9	-101.3	7,391.6	0.00	0.00	0.00
19,600.0	90.00	359.44	12,135.0	7,490.9	-102.3	7,491.6	0.00	0.00	0.00
19,700.0	90.00	359.44	12,135.0	7,590.9	-103.3	7,591.6	0.00	0.00	0.00
19,800.0	90.00	359.44	12,135.0	7,690.9	-104.2	7,691.6	0.00	0.00	0.00
19,900.0	90.00	359.44	12,135.0	7,790.9	-105.2	7,791.6	0.00	0.00	0.00
20,000.0	90.00	359.44	12,135.0	7,890.9	-106.2	7,891.6	0.00	0.00	0.00
20,100.0	90.00	359.44	12,135.0	7,990.8	-107.1	7,991.6	0.00	0.00	0.00
20,200.0	90.00	359.44	12,135.0	8,090.8	-108.1	8,091.6	0.00	0.00	0.00
20,300.0	90.00	359.44	12,135.0	8,190.8	-109.1	8,191.6	0.00	0.00	0.00

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

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)	
20,400.0	90.00	359.44	12,135.0	8,290.8	-110.1	8,291.6	0.00	0.00	0.00	
20,500.0	90.00	359.44	12,135.0	8,390.8	-111.0	8,391.6	0.00	0.00	0.00	
20,600.0	90.00	359.44	12,135.0	8,490.8	-112.0	8,491.6	0.00	0.00	0.00	
20,700.0	90.00	359.44	12,135.0	8,590.8	-113.0	8,591.6	0.00	0.00	0.00	
20,800.0	90.00	359.44	12,135.0	8,690.8	-113.9	8,691.6	0.00	0.00	0.00	
20,900.0	90.00	359.44	12,135.0	8,790.8	-114.9	8,791.6	0.00	0.00	0.00	
21,000.0	90.00	359.44	12,135.0	8,890.8	-115.9	8,891.6	0.00	0.00	0.00	
21,100.0	90.00	359.44	12,135.0	8,990.8	-116.9	8,991.6	0.00	0.00	0.00	
21,200.0	90.00	359.44	12,135.0	9,090.8	-117.8	9,091.6	0.00	0.00	0.00	
21,300.0	90.00	359.44	12,135.0	9,190.8	-118.8	9,191.6	0.00	0.00	0.00	
21,400.0	90.00	359.44	12,135.0	9,290.8	-119.8	9,291.6	0.00	0.00	0.00	
21,500.0	90.00	359.44	12,135.0	9,390.8	-120.7	9,391.6	0.00	0.00	0.00	
21,600.0	90.00	359.44	12,135.0	9,490.8	-121.7	9,491.6	0.00	0.00	0.00	
21,700.0	90.00	359.44	12,135.0	9,590.8	-122.7	9,591.6	0.00	0.00	0.00	
21,800.0	90.00	359.44	12,135.0	9,690.8	-123.7	9,691.6	0.00	0.00	0.00	
21,900.0	90.00	359.44	12,135.0	9,790.8	-124.6	9,791.6	0.00	0.00	0.00	
22,000.0	90.00	359.44	12,135.0	9,890.8	-125.6	9,891.6	0.00	0.00	0.00	
22,100.0	90.00	359.44	12,135.0	9,990.8	-126.6	9,991.6	0.00	0.00	0.00	
22,144.2	90.00	359.44	12,135.0	10,035.0	-127.0	10,035.8	0.00	0.00	0.00	
LTP - LTP (Nandina Fed Com 25-36-31 #115H) - LTP (Nandina Fed Com 25-36-31 #105H)										
22,200.0	90.00	359.44	12,135.0	10,090.7	-127.5	10,091.6	0.00	0.00	0.00	
22,274.3	90.00	359.44	12,135.0	10,165.0	-128.3	10,165.8	0.00	0.00	0.00	
PBHL - 200' FNL, 2318' FEL - PBHL (Nandina Fed Com 25-36-31 #115H)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
LTP (Nandina Fed Co - plan hits target center - Point	0.00	359.44	12,135.0	10,035.0	-127.0	404,446.00	860,310.00	32.1077113	-103.3031684	
PBHL (Nandina Fed C - plan misses target center by 0.3usft at 22274.3usft MD (12135.0 TVD, 10165.0 N, -128.3 E) - Point	0.00	359.44	12,135.0	10,165.0	-128.0	404,576.00	860,309.00	32.1080686	-103.3031676	
FTP (Nandina Fed Co - plan misses target center by 94.0usft at 12256.4usft MD (12096.2 TVD, 159.2 N, 51.5 E) - Point	0.00	0.00	12,135.0	130.0	-29.0	394,541.00	860,408.00	32.0804846	-103.3031575	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
5,088.7	5,084.0	9.625		9-5/8	12-1/4
11,872.5	11,852.0	7.625		7-5/8	8-3/4
22,274.3	12,135.0	5 1/2"		5-1/2	6-3/4

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #115H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3041.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3041.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #115H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,068.0	1,068.0	Rustler			
1,508.0	1,508.0	Salado			
3,235.8	3,234.0	Tansill			
5,038.6	5,034.0	Lamar			
5,073.6	5,069.0	Bell Canyon			
7,115.4	7,109.0	Brushy Canyon			
8,341.4	8,335.0	Bone Spring Lime			
9,717.4	9,711.0	First Bone Spring			
10,275.4	10,269.0	Second Bone Spring			
10,861.4	10,855.0	Third Bone Spring Upper			
11,460.4	11,454.0	Third Bone Spring			
11,727.5	11,719.0	Wolfcamp			
12,229.9	12,086.0	Wolfcamp B			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,000.0	2,000.0	0.0	0.0	BUILD - 2.00
2,160.1	2,160.0	-3.8	2.3	HOLD - 4016.3 at 2160.1 MD
6,176.4	6,170.0	-196.2	117.7	DROP - 2.00
6,336.4	6,330.0	-200.0	120.0	HOLD - 5232.0 at 6336.4 MD
11,568.4	11,562.0	-200.0	120.0	KOP - BUILD - 10.00 - 10566' FNL, 2172' FEL
12,468.4	12,135.0	362.8	12.6	EOC/TURN - DLS 2.00 TFO 90.00
12,980.6	12,135.0	871.8	-38.0	HOLD - 9163.6 at 12980.6 MD
13,229.5	12,135.0	1,120.7	-40.4	Section 31 1320' FSL - 9245' FNL, 2318' FEL
14,549.5	12,135.0	2,440.6	-53.2	Section 31 2640' FSL - 7926' FNL, 2318' FEL
17,188.1	12,135.0	5,079.1	-78.8	Section 31 & Cross - 5287' FNL, 2318' FEL
18,508.1	12,135.0	6,399.0	-91.7	Section 30 1320' FEL - 3967' FNL, 2318' FEL
22,144.2	12,135.0	10,035.0	-127.0	LTP
22,274.3	12,135.0	10,165.0	-128.3	PBHL - 200' FNL, 2318' FEL