



AMEREDEV

OCD – HOBBS
10/01/2018
RECEIVED

Ameredev Operating, LLC

Lea County, NM (NAD83 NME)
(Nandina Fed) Sec-31_T-25-S_R-36-E
Nandina Fed Com 25-36-31#105H

OWB

Plan: Plan #2

Standard Planning Report

26 June, 2018



INTREPID



Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #105H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3040.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3040.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #105H	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 #105H			
Well Position	+N/-S	-1.0 usft	Northing:	394,411.00 usft
	+E/-W	-100.0 usft	Easting:	860,417.00 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	Latitude: 32.0801271
				Longitude: -103.3031324
				Ground Level: 3,013.0 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2018/04/25	6.72	59.96	47,795.67775175

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	359.39

Plan Survey Tool Program	Date	2018/06/26		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	21,821.0	Plan #2 (OWB)	MWD
				MWD - Standard



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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	
2,149.9	3.00	51.34	2,149.8	2.4	3.1	2.00	2.00	0.00	51.34	
4,448.4	3.00	51.34	4,445.2	77.6	96.9	0.00	0.00	0.00	0.00	
4,598.3	0.00	0.00	4,595.0	80.0	100.0	2.00	-2.00	0.00	180.00	
11,400.3	0.00	0.00	11,397.0	80.0	100.0	0.00	0.00	0.00	0.00	
12,300.3	90.00	351.30	11,970.0	646.4	13.3	10.00	10.00	0.00	351.30	
12,707.4	90.00	359.44	11,970.0	1,051.8	-19.5	2.00	0.00	2.00	90.00	
21,691.0	90.00	359.44	11,970.0	10,035.0	-107.0	0.00	0.00	0.00	0.00	LTP (Nandina Fed (
21,821.0	90.00	359.44	11,970.0	10,165.0	-108.3	0.00	0.00	0.00	0.00	PBHL (Nandina Fec

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Well:	Nandina Fed Com 25-36-31 #105H	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
1,067.0	0.00	0.00	1,067.0	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
1,507.0	0.00	0.00	1,507.0	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	51.34	2,100.0	1.1	1.4	1.1	2.00	2.00	0.00
2,149.9	3.00	51.34	2,149.8	2.4	3.1	2.4	2.00	2.00	0.00
HOLD - 2298.5 at 2149.9 MD									
2,200.0	3.00	51.34	2,199.9	4.1	5.1	4.0	0.00	0.00	0.00
2,300.0	3.00	51.34	2,299.7	7.4	9.2	7.3	0.00	0.00	0.00
2,400.0	3.00	51.34	2,399.6	10.6	13.3	10.5	0.00	0.00	0.00
2,500.0	3.00	51.34	2,499.5	13.9	17.4	13.7	0.00	0.00	0.00
2,600.0	3.00	51.34	2,599.3	17.2	21.4	16.9	0.00	0.00	0.00
2,700.0	3.00	51.34	2,699.2	20.4	25.5	20.2	0.00	0.00	0.00
2,800.0	3.00	51.34	2,799.0	23.7	29.6	23.4	0.00	0.00	0.00
2,900.0	3.00	51.34	2,898.9	27.0	33.7	26.6	0.00	0.00	0.00
3,000.0	3.00	51.34	2,998.8	30.2	37.8	29.8	0.00	0.00	0.00
3,100.0	3.00	51.34	3,098.6	33.5	41.9	33.0	0.00	0.00	0.00
3,200.0	3.00	51.34	3,198.5	36.8	46.0	36.3	0.00	0.00	0.00
3,234.6	3.00	51.34	3,233.0	37.9	47.4	37.4	0.00	0.00	0.00
Tansill									
3,300.0	3.00	51.34	3,298.4	40.0	50.0	39.5	0.00	0.00	0.00
3,400.0	3.00	51.34	3,398.2	43.3	54.1	42.7	0.00	0.00	0.00
3,500.0	3.00	51.34	3,498.1	46.6	58.2	45.9	0.00	0.00	0.00
3,600.0	3.00	51.34	3,597.9	49.8	62.3	49.2	0.00	0.00	0.00
3,700.0	3.00	51.34	3,697.8	53.1	66.4	52.4	0.00	0.00	0.00
3,800.0	3.00	51.34	3,797.7	56.4	70.5	55.6	0.00	0.00	0.00
3,900.0	3.00	51.34	3,897.5	59.6	74.5	58.8	0.00	0.00	0.00
4,000.0	3.00	51.34	3,997.4	62.9	78.6	62.1	0.00	0.00	0.00
4,100.0	3.00	51.34	4,097.3	66.2	82.7	65.3	0.00	0.00	0.00
4,200.0	3.00	51.34	4,197.1	69.4	86.8	68.5	0.00	0.00	0.00
4,300.0	3.00	51.34	4,297.0	72.7	90.9	71.7	0.00	0.00	0.00
4,400.0	3.00	51.34	4,396.9	76.0	95.0	75.0	0.00	0.00	0.00

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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)
4,448.4	3.00	51.34	4,445.2	77.6	96.9	76.5	0.00	0.00	0.00
DROP - 2.00									
4,500.0	1.97	51.34	4,496.7	78.9	98.7	77.9	2.00	-2.00	0.00
4,598.3	0.00	0.00	4,595.0	80.0	100.0	78.9	2.00	-2.00	-52.24
HOLD - 6802.0 at 4598.3 MD									
4,600.0	0.00	0.00	4,596.7	80.0	100.0	78.9	0.00	0.00	0.00
4,700.0	0.00	0.00	4,696.7	80.0	100.0	78.9	0.00	0.00	0.00
4,800.0	0.00	0.00	4,796.7	80.0	100.0	78.9	0.00	0.00	0.00
4,900.0	0.00	0.00	4,896.7	80.0	100.0	78.9	0.00	0.00	0.00
5,000.0	0.00	0.00	4,996.7	80.0	100.0	78.9	0.00	0.00	0.00
5,036.3	0.00	0.00	5,033.0	80.0	100.0	78.9	0.00	0.00	0.00
Lamar									
5,071.3	0.00	0.00	5,068.0	80.0	100.0	78.9	0.00	0.00	0.00
Bell Canyon									
5,086.3	0.00	0.00	5,083.0	80.0	100.0	78.9	0.00	0.00	0.00
9.625									
5,100.0	0.00	0.00	5,096.7	80.0	100.0	78.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,196.7	80.0	100.0	78.9	0.00	0.00	0.00
5,300.0	0.00	0.00	5,296.7	80.0	100.0	78.9	0.00	0.00	0.00
5,400.0	0.00	0.00	5,396.7	80.0	100.0	78.9	0.00	0.00	0.00
5,500.0	0.00	0.00	5,496.7	80.0	100.0	78.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,596.7	80.0	100.0	78.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,696.7	80.0	100.0	78.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,796.7	80.0	100.0	78.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,896.7	80.0	100.0	78.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,996.7	80.0	100.0	78.9	0.00	0.00	0.00
6,100.0	0.00	0.00	6,096.7	80.0	100.0	78.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,196.7	80.0	100.0	78.9	0.00	0.00	0.00
6,300.0	0.00	0.00	6,296.7	80.0	100.0	78.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,396.7	80.0	100.0	78.9	0.00	0.00	0.00
6,500.0	0.00	0.00	6,496.7	80.0	100.0	78.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,596.7	80.0	100.0	78.9	0.00	0.00	0.00
6,700.0	0.00	0.00	6,696.7	80.0	100.0	78.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,796.7	80.0	100.0	78.9	0.00	0.00	0.00
6,900.0	0.00	0.00	6,896.7	80.0	100.0	78.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,996.7	80.0	100.0	78.9	0.00	0.00	0.00
7,100.0	0.00	0.00	7,096.7	80.0	100.0	78.9	0.00	0.00	0.00
7,111.3	0.00	0.00	7,108.0	80.0	100.0	78.9	0.00	0.00	0.00
Brushy Canyon									
7,200.0	0.00	0.00	7,196.7	80.0	100.0	78.9	0.00	0.00	0.00
7,300.0	0.00	0.00	7,296.7	80.0	100.0	78.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,396.7	80.0	100.0	78.9	0.00	0.00	0.00
7,500.0	0.00	0.00	7,496.7	80.0	100.0	78.9	0.00	0.00	0.00
7,600.0	0.00	0.00	7,596.7	80.0	100.0	78.9	0.00	0.00	0.00
7,700.0	0.00	0.00	7,696.7	80.0	100.0	78.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,796.7	80.0	100.0	78.9	0.00	0.00	0.00
7,900.0	0.00	0.00	7,896.7	80.0	100.0	78.9	0.00	0.00	0.00
8,000.0	0.00	0.00	7,996.7	80.0	100.0	78.9	0.00	0.00	0.00
8,100.0	0.00	0.00	8,096.7	80.0	100.0	78.9	0.00	0.00	0.00
8,200.0	0.00	0.00	8,196.7	80.0	100.0	78.9	0.00	0.00	0.00
8,300.0	0.00	0.00	8,296.7	80.0	100.0	78.9	0.00	0.00	0.00
8,337.3	0.00	0.00	8,334.0	80.0	100.0	78.9	0.00	0.00	0.00
Bone Spring Lime									

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8,400.0	0.00	0.00	8,396.7	80.0	100.0	78.9	0.00	0.00	0.00
8,500.0	0.00	0.00	8,496.7	80.0	100.0	78.9	0.00	0.00	0.00
8,600.0	0.00	0.00	8,596.7	80.0	100.0	78.9	0.00	0.00	0.00
8,700.0	0.00	0.00	8,696.7	80.0	100.0	78.9	0.00	0.00	0.00
8,800.0	0.00	0.00	8,796.7	80.0	100.0	78.9	0.00	0.00	0.00
8,900.0	0.00	0.00	8,896.7	80.0	100.0	78.9	0.00	0.00	0.00
9,000.0	0.00	0.00	8,996.7	80.0	100.0	78.9	0.00	0.00	0.00
9,100.0	0.00	0.00	9,096.7	80.0	100.0	78.9	0.00	0.00	0.00
9,200.0	0.00	0.00	9,196.7	80.0	100.0	78.9	0.00	0.00	0.00
9,300.0	0.00	0.00	9,296.7	80.0	100.0	78.9	0.00	0.00	0.00
9,400.0	0.00	0.00	9,396.7	80.0	100.0	78.9	0.00	0.00	0.00
9,500.0	0.00	0.00	9,496.7	80.0	100.0	78.9	0.00	0.00	0.00
9,600.0	0.00	0.00	9,596.7	80.0	100.0	78.9	0.00	0.00	0.00
9,700.0	0.00	0.00	9,696.7	80.0	100.0	78.9	0.00	0.00	0.00
9,713.3	0.00	0.00	9,710.0	80.0	100.0	78.9	0.00	0.00	0.00
First Bone Spring									
9,800.0	0.00	0.00	9,796.7	80.0	100.0	78.9	0.00	0.00	0.00
9,900.0	0.00	0.00	9,896.7	80.0	100.0	78.9	0.00	0.00	0.00
10,000.0	0.00	0.00	9,996.7	80.0	100.0	78.9	0.00	0.00	0.00
10,100.0	0.00	0.00	10,096.7	80.0	100.0	78.9	0.00	0.00	0.00
10,200.0	0.00	0.00	10,196.7	80.0	100.0	78.9	0.00	0.00	0.00
10,271.3	0.00	0.00	10,268.0	80.0	100.0	78.9	0.00	0.00	0.00
Second Bone Spring									
10,300.0	0.00	0.00	10,296.7	80.0	100.0	78.9	0.00	0.00	0.00
10,400.0	0.00	0.00	10,396.7	80.0	100.0	78.9	0.00	0.00	0.00
10,500.0	0.00	0.00	10,496.7	80.0	100.0	78.9	0.00	0.00	0.00
10,600.0	0.00	0.00	10,596.7	80.0	100.0	78.9	0.00	0.00	0.00
10,700.0	0.00	0.00	10,696.7	80.0	100.0	78.9	0.00	0.00	0.00
10,800.0	0.00	0.00	10,796.7	80.0	100.0	78.9	0.00	0.00	0.00
10,857.3	0.00	0.00	10,854.0	80.0	100.0	78.9	0.00	0.00	0.00
Third Bone Spring Upper									
10,900.0	0.00	0.00	10,896.7	80.0	100.0	78.9	0.00	0.00	0.00
11,000.0	0.00	0.00	10,996.7	80.0	100.0	78.9	0.00	0.00	0.00
11,100.0	0.00	0.00	11,096.7	80.0	100.0	78.9	0.00	0.00	0.00
11,200.0	0.00	0.00	11,196.7	80.0	100.0	78.9	0.00	0.00	0.00
11,300.0	0.00	0.00	11,296.7	80.0	100.0	78.9	0.00	0.00	0.00
11,400.3	0.00	0.00	11,397.0	80.0	100.0	78.9	0.00	0.00	0.00
KOP BUILD 10.00 - 10286' FNL, 2209' FEL									
11,450.0	4.97	351.30	11,446.7	82.1	99.7	81.1	10.00	10.00	0.00
FTP (Nandina Fed Com 25-36-31 #105H)									
11,456.4	5.61	351.30	11,453.0	82.7	99.6	81.6	10.00	10.00	0.00
Third Bone Spring									
11,500.0	9.97	351.30	11,496.2	88.6	98.7	87.5	10.00	10.00	0.00
11,550.0	14.97	351.30	11,545.0	99.2	97.1	98.2	10.00	10.00	0.00
11,600.0	19.97	351.30	11,592.7	114.1	94.8	113.0	10.00	10.00	0.00
11,650.0	24.97	351.30	11,638.9	132.9	91.9	132.0	10.00	10.00	0.00
11,700.0	29.97	351.30	11,683.2	155.7	88.4	154.8	10.00	10.00	0.00
11,741.0	34.07	351.30	11,718.0	177.2	85.1	176.3	10.00	10.00	0.00
Wolfcamp									
11,750.0	34.97	351.30	11,725.4	182.3	84.4	181.4	10.00	10.00	0.00
11,800.0	39.97	351.30	11,765.1	212.3	79.8	211.5	10.00	10.00	0.00
11,850.0	44.97	351.30	11,801.9	245.7	74.6	244.9	10.00	10.00	0.00
11,888.7	48.84	351.30	11,828.4	273.6	70.4	272.8	10.00	10.00	0.00

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 #105H
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 #105H
 KB @ 3040.0usft (H&P 616)
 KB @ 3040.0usft (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)
FTP (Nandina Fed Com 25-36-31 #105H) v2									
11,900.0	49.97	351.30	11,835.7	282.1	69.1	281.3	10.00	10.00	0.00
11,924.4	52.41	351.30	11,851.0	300.9	66.2	300.1	10.00	10.00	0.00
7.625									
11,950.0	54.97	351.30	11,866.2	321.3	63.1	320.6	10.00	10.00	0.00
12,000.0	59.97	351.30	11,893.1	362.9	56.7	362.3	10.00	10.00	0.00
12,050.0	64.97	351.30	11,916.2	406.8	50.0	406.2	10.00	10.00	0.00
12,100.0	69.97	351.30	11,935.3	452.4	43.0	451.9	10.00	10.00	0.00
12,150.0	74.97	351.30	11,950.4	499.5	35.8	499.1	10.00	10.00	0.00
12,200.0	79.97	351.30	11,961.2	547.7	28.4	547.4	10.00	10.00	0.00
12,250.0	84.97	351.30	11,967.8	596.7	20.9	596.5	10.00	10.00	0.00
12,300.3	90.00	351.30	11,970.0	646.4	13.3	646.2	10.00	10.00	0.00
EOC/TURN - DLS 2.00 TFO 90.00									
12,400.0	90.00	353.29	11,970.0	745.2	0.0	745.1	2.00	0.00	2.00
12,500.0	90.00	355.29	11,970.0	844.7	-10.0	844.7	2.00	0.00	2.00
12,600.0	90.00	357.29	11,970.0	944.5	-16.4	944.6	2.00	0.00	2.00
12,707.4	90.00	359.44	11,970.0	1,051.8	-19.5	1,051.9	2.00	0.00	2.00
HOLD - 8983.6 at 12707.4 MD									
12,775.3	90.00	359.44	11,970.0	1,119.7	-20.2	1,119.9	0.00	0.00	0.00
Section 31 1320' FSL - 9246' FNL, 2318' FEL									
12,800.0	90.00	359.44	11,970.0	1,144.4	-20.4	1,144.6	0.00	0.00	0.00
12,900.0	90.00	359.44	11,970.0	1,244.4	-21.4	1,244.6	0.00	0.00	0.00
13,000.0	90.00	359.44	11,970.0	1,344.4	-22.3	1,344.6	0.00	0.00	0.00
13,100.0	90.00	359.44	11,970.0	1,444.4	-23.3	1,444.6	0.00	0.00	0.00
13,200.0	90.00	359.44	11,970.0	1,544.4	-24.3	1,544.6	0.00	0.00	0.00
13,300.0	90.00	359.44	11,970.0	1,644.4	-25.3	1,644.6	0.00	0.00	0.00
13,400.0	90.00	359.44	11,970.0	1,744.4	-26.2	1,744.6	0.00	0.00	0.00
13,500.0	90.00	359.44	11,970.0	1,844.4	-27.2	1,844.6	0.00	0.00	0.00
13,600.0	90.00	359.44	11,970.0	1,944.4	-28.2	1,944.6	0.00	0.00	0.00
13,700.0	90.00	359.44	11,970.0	2,044.4	-29.2	2,044.6	0.00	0.00	0.00
13,800.0	90.00	359.44	11,970.0	2,144.4	-30.1	2,144.6	0.00	0.00	0.00
13,900.0	90.00	359.44	11,970.0	2,244.4	-31.1	2,244.6	0.00	0.00	0.00
14,000.0	90.00	359.44	11,970.0	2,344.4	-32.1	2,344.6	0.00	0.00	0.00
14,095.3	90.00	359.44	11,970.0	2,439.6	-33.0	2,439.9	0.00	0.00	0.00
Section 31 2640' FSL - 7926' FNL, 2318' FEL									
14,100.0	90.00	359.44	11,970.0	2,444.3	-33.1	2,444.6	0.00	0.00	0.00
14,200.0	90.00	359.44	11,970.0	2,544.3	-34.0	2,544.6	0.00	0.00	0.00
14,300.0	90.00	359.44	11,970.0	2,644.3	-35.0	2,644.6	0.00	0.00	0.00
14,400.0	90.00	359.44	11,970.0	2,744.3	-36.0	2,744.6	0.00	0.00	0.00
14,500.0	90.00	359.44	11,970.0	2,844.3	-37.0	2,844.6	0.00	0.00	0.00
14,600.0	90.00	359.44	11,970.0	2,944.3	-37.9	2,944.6	0.00	0.00	0.00
14,700.0	90.00	359.44	11,970.0	3,044.3	-38.9	3,044.6	0.00	0.00	0.00
14,800.0	90.00	359.44	11,970.0	3,144.3	-39.9	3,144.6	0.00	0.00	0.00
14,900.0	90.00	359.44	11,970.0	3,244.3	-40.9	3,244.6	0.00	0.00	0.00
15,000.0	90.00	359.44	11,970.0	3,344.3	-41.8	3,344.6	0.00	0.00	0.00
15,100.0	90.00	359.44	11,970.0	3,444.3	-42.8	3,444.6	0.00	0.00	0.00
15,200.0	90.00	359.44	11,970.0	3,544.3	-43.8	3,544.6	0.00	0.00	0.00
15,300.0	90.00	359.44	11,970.0	3,644.3	-44.7	3,644.6	0.00	0.00	0.00
15,400.0	90.00	359.44	11,970.0	3,744.3	-45.7	3,744.6	0.00	0.00	0.00
15,500.0	90.00	359.44	11,970.0	3,844.3	-46.7	3,844.6	0.00	0.00	0.00
15,600.0	90.00	359.44	11,970.0	3,944.3	-47.7	3,944.6	0.00	0.00	0.00
15,700.0	90.00	359.44	11,970.0	4,044.3	-48.6	4,044.6	0.00	0.00	0.00
15,800.0	90.00	359.44	11,970.0	4,144.3	-49.6	4,144.6	0.00	0.00	0.00

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #105H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3040.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3040.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #105H	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)
15,900.0	90.00	359.44	11,970.0	4,244.3	-50.6	4,244.6	0.00	0.00	0.00
16,000.0	90.00	359.44	11,970.0	4,344.3	-51.6	4,344.6	0.00	0.00	0.00
16,100.0	90.00	359.44	11,970.0	4,444.3	-52.5	4,444.6	0.00	0.00	0.00
16,200.0	90.00	359.44	11,970.0	4,544.2	-53.5	4,544.6	0.00	0.00	0.00
16,300.0	90.00	359.44	11,970.0	4,644.2	-54.5	4,644.6	0.00	0.00	0.00
16,400.0	90.00	359.44	11,970.0	4,744.2	-55.5	4,744.6	0.00	0.00	0.00
16,500.0	90.00	359.44	11,970.0	4,844.2	-56.4	4,844.6	0.00	0.00	0.00
16,600.0	90.00	359.44	11,970.0	4,944.2	-57.4	4,944.6	0.00	0.00	0.00
16,700.0	90.00	359.44	11,970.0	5,044.2	-58.4	5,044.6	0.00	0.00	0.00
16,733.8	90.00	359.44	11,970.0	5,078.0	-58.7	5,078.4	0.00	0.00	0.00
Section 31 & 30 Cross - 5287' FNL, 2318' FEL									
16,800.0	90.00	359.44	11,970.0	5,144.2	-59.4	5,144.6	0.00	0.00	0.00
16,900.0	90.00	359.44	11,970.0	5,244.2	-60.3	5,244.6	0.00	0.00	0.00
17,000.0	90.00	359.44	11,970.0	5,344.2	-61.3	5,344.6	0.00	0.00	0.00
17,100.0	90.00	359.44	11,970.0	5,444.2	-62.3	5,444.6	0.00	0.00	0.00
17,200.0	90.00	359.44	11,970.0	5,544.2	-63.3	5,544.6	0.00	0.00	0.00
17,300.0	90.00	359.44	11,970.0	5,644.2	-64.2	5,644.6	0.00	0.00	0.00
17,400.0	90.00	359.44	11,970.0	5,744.2	-65.2	5,744.6	0.00	0.00	0.00
17,500.0	90.00	359.44	11,970.0	5,844.2	-66.2	5,844.6	0.00	0.00	0.00
17,600.0	90.00	359.44	11,970.0	5,944.2	-67.2	5,944.6	0.00	0.00	0.00
17,700.0	90.00	359.44	11,970.0	6,044.2	-68.1	6,044.6	0.00	0.00	0.00
17,800.0	90.00	359.44	11,970.0	6,144.2	-69.1	6,144.6	0.00	0.00	0.00
17,900.0	90.00	359.44	11,970.0	6,244.2	-70.1	6,244.6	0.00	0.00	0.00
18,000.0	90.00	359.44	11,970.0	6,344.2	-71.0	6,344.6	0.00	0.00	0.00
18,053.8	90.00	359.44	11,970.0	6,398.0	-71.6	6,398.4	0.00	0.00	0.00
Section 30 1320' FSL - 3967' FNL, 2318' FEL									
18,100.0	90.00	359.44	11,970.0	6,444.2	-72.0	6,444.6	0.00	0.00	0.00
18,200.0	90.00	359.44	11,970.0	6,544.2	-73.0	6,544.6	0.00	0.00	0.00
18,300.0	90.00	359.44	11,970.0	6,644.1	-74.0	6,644.6	0.00	0.00	0.00
18,400.0	90.00	359.44	11,970.0	6,744.1	-74.9	6,744.6	0.00	0.00	0.00
18,500.0	90.00	359.44	11,970.0	6,844.1	-75.9	6,844.6	0.00	0.00	0.00
18,600.0	90.00	359.44	11,970.0	6,944.1	-76.9	6,944.6	0.00	0.00	0.00
18,700.0	90.00	359.44	11,970.0	7,044.1	-77.9	7,044.6	0.00	0.00	0.00
18,800.0	90.00	359.44	11,970.0	7,144.1	-78.8	7,144.6	0.00	0.00	0.00
18,900.0	90.00	359.44	11,970.0	7,244.1	-79.8	7,244.6	0.00	0.00	0.00
19,000.0	90.00	359.44	11,970.0	7,344.1	-80.8	7,344.6	0.00	0.00	0.00
19,100.0	90.00	359.44	11,970.0	7,444.1	-81.8	7,444.6	0.00	0.00	0.00
19,200.0	90.00	359.44	11,970.0	7,544.1	-82.7	7,544.6	0.00	0.00	0.00
19,300.0	90.00	359.44	11,970.0	7,644.1	-83.7	7,644.6	0.00	0.00	0.00
19,400.0	90.00	359.44	11,970.0	7,744.1	-84.7	7,744.6	0.00	0.00	0.00
19,500.0	90.00	359.44	11,970.0	7,844.1	-85.7	7,844.6	0.00	0.00	0.00
19,600.0	90.00	359.44	11,970.0	7,944.1	-86.6	7,944.6	0.00	0.00	0.00
19,700.0	90.00	359.44	11,970.0	8,044.1	-87.6	8,044.6	0.00	0.00	0.00
19,800.0	90.00	359.44	11,970.0	8,144.1	-88.6	8,144.6	0.00	0.00	0.00
19,900.0	90.00	359.44	11,970.0	8,244.1	-89.6	8,244.6	0.00	0.00	0.00
20,000.0	90.00	359.44	11,970.0	8,344.1	-90.5	8,344.6	0.00	0.00	0.00
20,100.0	90.00	359.44	11,970.0	8,444.1	-91.5	8,444.6	0.00	0.00	0.00
20,200.0	90.00	359.44	11,970.0	8,544.1	-92.5	8,544.6	0.00	0.00	0.00
20,300.0	90.00	359.44	11,970.0	8,644.1	-93.5	8,644.6	0.00	0.00	0.00
20,400.0	90.00	359.44	11,970.0	8,744.0	-94.4	8,744.6	0.00	0.00	0.00
20,500.0	90.00	359.44	11,970.0	8,844.0	-95.4	8,844.6	0.00	0.00	0.00
20,600.0	90.00	359.44	11,970.0	8,944.0	-96.4	8,944.6	0.00	0.00	0.00
20,700.0	90.00	359.44	11,970.0	9,044.0	-97.3	9,044.6	0.00	0.00	0.00
20,800.0	90.00	359.44	11,970.0	9,144.0	-98.3	9,144.6	0.00	0.00	0.00

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #105H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3040.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3040.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #105H	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)
20,900.0	90.00	359.44	11,970.0	9,244.0	-99.3	9,244.6	0.00	0.00	0.00
21,000.0	90.00	359.44	11,970.0	9,344.0	-100.3	9,344.6	0.00	0.00	0.00
21,100.0	90.00	359.44	11,970.0	9,444.0	-101.2	9,444.6	0.00	0.00	0.00
21,200.0	90.00	359.44	11,970.0	9,544.0	-102.2	9,544.6	0.00	0.00	0.00
21,300.0	90.00	359.44	11,970.0	9,644.0	-103.2	9,644.6	0.00	0.00	0.00
21,400.0	90.00	359.44	11,970.0	9,744.0	-104.2	9,744.6	0.00	0.00	0.00
21,500.0	90.00	359.44	11,970.0	9,844.0	-105.1	9,844.6	0.00	0.00	0.00
21,600.0	90.00	359.44	11,970.0	9,944.0	-106.1	9,944.6	0.00	0.00	0.00
21,691.0	90.00	359.44	11,970.0	10,035.0	-107.0	10,035.6	0.00	0.00	0.00
LTP (Nandina Fed Com 25-36-31 #105H)									
21,700.0	90.00	359.44	11,970.0	10,044.0	-107.1	10,044.6	0.00	0.00	0.00
21,800.0	90.00	359.44	11,970.0	10,144.0	-108.1	10,144.6	0.00	0.00	0.00
21,821.0	90.00	359.44	11,970.0	10,165.0	-108.3	10,165.6	0.00	0.00	0.00
PBHL - 200' FNL, 2318' FEL - 5 1/2" - PBHL (Nandina Fed Com 25-36-31 #105H)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (Nandina Fed Co - hit/miss target - Shape - Point	0.00	0.01	11,970.0	130.0	-9.0	394,541.00	860,408.00	32.0804846	-103.3031575
- plan misses target center by 216.8usft at 11888.7usft MD (11828.4 TVD, 273.6 N, 70.4 E)									
PBHL (Nandina Fed C - plan misses target center by 0.3usft at 21821.0usft MD (11970.0 TVD, 10165.0 N, -108.3 E) - Point	0.00	0.00	11,970.0	10,165.0	-108.0	404,576.00	860,309.00	32.1080686	-103.3031676
LTP (Nandina Fed Co - plan hits target center - Point	0.00	359.44	11,970.0	10,035.0	-107.0	404,446.00	860,310.00	32.1077113	-103.3031684

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
5,086.3	5,083.0	9.625	9-5/8	12-1/4	
11,924.4	11,851.0	7.625	7-5/8	8-3/4	
21,821.0	11,970.0	5 1/2"	5-1/2	6-3/4	

Database:	EDM5000	Local Co-ordinate Reference:	Well Nandina Fed Com 25-36-31 #105H
Company:	Ameredev Operating, LLC	TVD Reference:	KB @ 3040.0usft (H&P 616)
Project:	Lea County, NM (NAD83 NME)	MD Reference:	KB @ 3040.0usft (H&P 616)
Site:	(Nandina Fed) Sec-31_T-25-S_R-36-E	North Reference:	Grid
Well:	Nandina Fed Com 25-36-31 #105H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #2		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,067.0	1,067.0	Rustler			
1,507.0	1,507.0	Salado			
3,234.6	3,233.0	Tansill			
5,036.3	5,033.0	Lamar			
5,071.3	5,068.0	Bell Canyon			
7,111.3	7,108.0	Brushy Canyon			
8,337.3	8,334.0	Bone Spring Lime			
9,713.3	9,710.0	First Bone Spring			
10,271.3	10,268.0	Second Bone Spring			
10,857.3	10,854.0	Third Bone Spring Upper			
11,456.4	11,453.0	Third Bone Spring			
11,741.0	11,718.0	Wolfcamp			

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
2,149.9	2,149.8	2.4	3.1	HOLD - 2298.5 at 2149.9 MD
4,448.4	4,445.2	77.6	96.9	DROP - 2.00
4,598.3	4,595.0	80.0	100.0	HOLD - 6802.0 at 4598.3 MD
11,400.3	11,397.0	80.0	100.0	KOP BUILD 10.00 - 10286' FNL, 2209' FEL
12,300.3	11,970.0	646.4	13.3	EOC/TURN - DLS 2.00 TFO 90.00
12,707.4	11,970.0	1,051.8	-19.5	HOLD - 8983.6 at 12707.4 MD
12,775.3	11,970.0	1,119.7	-20.2	Section 31 1320' FSL - 9246' FNL, 2318' FEL
14,095.3	11,970.0	2,439.6	-33.0	Section 31 2640' FSL - 7926' FNL, 2318' FEL
16,733.8	11,970.0	5,078.0	-58.7	Section 31 & 30 Cross - 5287' FNL, 2318' FEL
18,053.8	11,970.0	6,398.0	-71.6	Section 30 1320' FSL - 3967' FNL, 2318' FEL
21,821.0	11,970.0	10,035.0	-107.0	PBHL - 200' FNL, 2318' FEL