

1625 N. French Dr., Hobbs, NM 88240
 District II
 811 S. First St., Artesia, NM 88210
 District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 District IV
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
 Energy, Minerals & Natural Resources

Form C-184
 Revised August 1, 2011

Oil Conservation Division
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

Submit one copy to appropriate District Office

AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address MANZANO, LLC PO BOX 1737 ROSWELL, NM		² OGRID Number 231429
		³ Reason for Filing Code/ Effective Date NW
⁴ API Number 30 - 025-48404	⁵ Pool Name WC-025 G-09 S173615C;UPPER PENN	⁶ Pool Code 98333
⁷ Property Code 329688	⁸ Property Name VINDICATOR CANYON 22-27 STATE UNIT CNLC	⁹ Well Number 3H

II. ¹⁰ Surface Location

Ul or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
N	15	17S	36E	N	715	S	2310	W	LEA

¹¹ Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	27	17S	36E	K	2116	S	2313	W	LEA

¹² Lse Code	¹³ Producing Method Code	¹⁴ Gas Connection Date	¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date	¹⁷ C-129 Expiration Date
S	P	6/16/21			

III. Oil and Gas Transporters

¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
33479	HOLLY FRONTIER REFINING & MARKETING, LLC	O
36785	DCP MIDSTREAM SERVICES	G


IV. Well Completion Data

²¹ Spud Date	²² Ready Date	²³ TD	²⁴ PBDT	²⁵ Perforations	²⁶ DHC, MC
3/18/21	6/12/21	21052	13815	12655-13812	
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
12.25	9.625	2106	700		
8.75	7.625	11835	1395		
6.75	5.5	16193	1085		

V. Well Test Data

³¹ Date New Oil	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
6/13/21	6/16/21	6/18/21	24	242	0
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas	⁴¹ Test Method	
30/64	452	358	576	F	

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature: 

Printed name:
MIKE HANAGAN

Title:
MANAGING MEMBER

E-mail Address:
mike@manzanoenergy.com

Date:
7/11/21

Phone:
575-623-1996

OIL CONSERVATION DIVISION

Approved by: KURT SIMMONS

Title: NMOCD, SANTA FE

Approval Date: 08/26/2021

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number 30-025-48404	Pool Code 98333	Pool Name WC-025 G-09 S173615C; UPPER PENN
Property Code 329688	Property Name VINDICATOR CANYON STATE UNIT 22-27 CNLC	Well Number 3H
OGRID No. 231429	Operator Name MANZANO LLC	Elevation 3849'

Surface Location

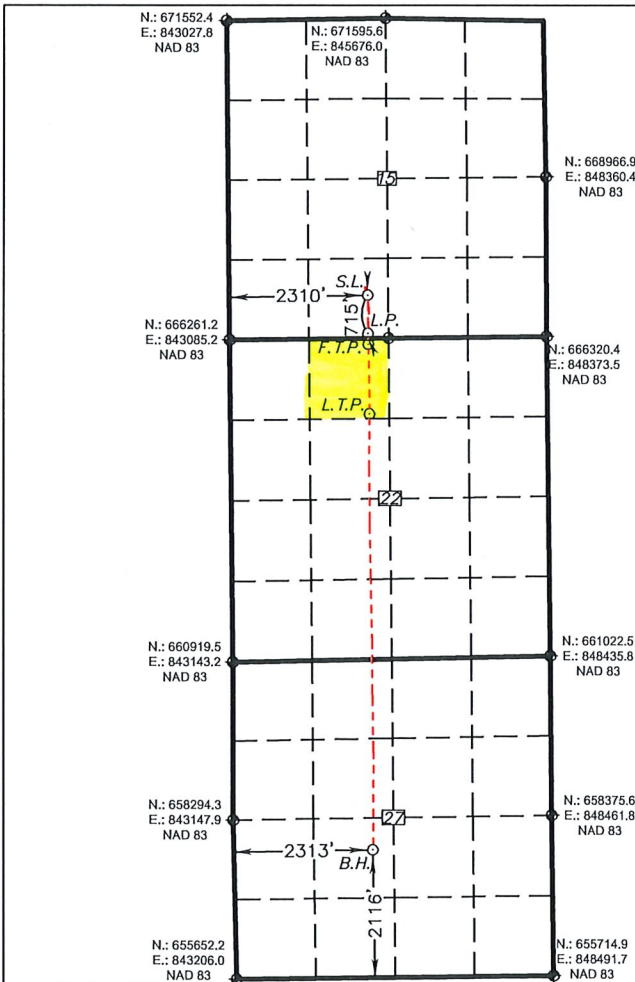
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	15	17 S	36 E		715	SOUTH	2310	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	27	17 S	36 E		2116	SOUTH	2313	WEST	LEA

Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



SURFACE LOCATION

Lat - N 32.829701'
Long - W 103.343493'
NMSPC - N 667002.1
E 845387.3
(NAD-83)

LANDING POINT

77' FSL & 2304' FWL
Lat - N 32.827947'
Long - W 103.343509'
NMSPC - N 666363.8
E 845388.4
(NAD-83)

FIRST TAKE POINT

104' FNL & 2308' FWL
Lat - N 32.827450'
Long - W 103.343497'
NMSPC - N 666183.0
E 845393.8
(NAD-83)

LAST TAKE POINT

1259' FNL & 2314' FWL
Lat - N 32.824275'
Long - W 103.343472'
NMSPC - N 665028.1
E 845412.3
(NAD-83)

BOTTOM HOLE LOCATION

Lat - N 32.804397'
Long - W 103.343497'
NMSPC - N 657795.5
E 845472.1
(NAD-83)

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Mike Hanagan 7/11/21
Signature Date
Mike HANAGAN
Printed Name
mike@manzanoeenergy.com
Email Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JUNE 29, 2021
Date Surveyed
Signature & Seal of Professional Surveyor
Certificate No. **Cory L. Jones 7977**
BASIN SURVEYS

0' 1500' 3000' 4500' 6000'
SCALE: 1" = 3000'
WO Num.: 35414



Manzano

Lea County, NM (NAD 83)

Vindicator Canyon State Unit 22-27 CNLC

Vindicator Canyon State Unit 22-27 CNLC #3H

Wellbore #2

Design: Surveys

Stryker Standard Survey

13 July, 2021





Stryker Directional
Stryker Standard Survey



Received by OCD: 7/13/2021 10:17:23 AM

Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

Project	Lea County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Vindicator Canyon State Unit 22-27 CNLC		
Site Position:		Northing:	667,002.0753 usft
From:	Lat/Long	Easting:	845,387.2591 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 46.924 N
		Longitude:	103° 20' 36.575 W
		Grid Convergence:	0.54 °

Well	Vindicator Canyon State Unit 22-27 CNLC #3H					
Well Position	+N/-S	0.00 usft	Northing:	667,002.0753 usft	Latitude:	32° 49' 46.924 N
	+E/-W	0.00 usft	Easting:	845,387.2591 usft	Longitude:	103° 20' 36.575 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,846.00 usft

Wellbore	Wellbore #2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	4/1/2021	6.51	60.49	47,893.27651133

Design	Surveys			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	
		Tie On Depth:	18,195.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.35

Released to Imaging: 8/26/2021 4:11:39 PM



Stryker Directional
Stryker Standard Survey



Company: Manzano
Project: Lea County, NM (NAD 83)
Site: Vindicator Canyon State Unit 22-27 CNLC
Well: Vindicator Canyon State Unit 22-27 CNLC #3H
Wellbore: Wellbore #2
Design: Surveys

Local Co-ordinate Reference: Well Vindicator Canyon State Unit 22-27 CNLC #3
TVD Reference: WELL @ 3871.00usft (H&P 489)
MD Reference: WELL @ 3871.00usft (H&P 489)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5000

Survey Program	Date										
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description							
136.00	18,195.00	Stryker MWD (Wellbore #1)	MWD	MWD v3:standard declination							
18,300.00	21,052.00	Stryker MWD (Wellbore #2)	MWD	MWD v3:standard declination							

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)
0.00	0.00	0.00	0.00	0.00	0.00	667,002.0753	845,387.2591	0.00	0.00	0.00
136.00	0.30	324.50	136.00	0.29	-0.21	667,002.3651	845,387.0524	0.22	0.00	-0.29
253.00	0.50	321.40	253.00	0.94	-0.70	667,003.0135	845,386.5560	0.17	-2.65	-0.95
430.00	0.90	316.60	429.98	2.55	-2.14	667,004.6270	845,385.1190	0.23	-2.71	-2.58
605.00	1.10	305.50	604.96	4.53	-4.45	667,006.6011	845,382.8072	0.11	-6.34	-4.58
775.00	1.20	315.00	774.92	6.73	-7.04	667,008.8074	845,380.2200	0.06	5.59	-6.81
870.00	1.40	310.70	869.90	8.19	-8.62	667,010.2676	845,378.6367	0.21	-4.53	-8.29
965.00	1.40	322.40	964.87	9.87	-10.21	667,011.9438	845,377.0488	0.00	12.32	-9.98
1,154.00	2.10	315.30	1,153.78	14.16	-14.05	667,016.2346	845,373.2043	0.37	-3.76	-14.32
1,249.00	2.80	330.70	1,248.69	17.42	-16.41	667,019.4954	845,370.8444	0.74	16.21	-17.61
1,344.00	2.90	332.10	1,343.58	21.57	-18.67	667,023.6427	845,368.5843	0.11	1.47	-21.78
1,438.00	3.70	337.10	1,437.42	26.46	-20.97	667,028.5382	845,366.2914	0.85	5.32	-26.70
1,532.00	4.60	340.70	1,531.17	32.81	-23.39	667,034.8899	845,363.8653	0.96	3.83	-33.08
1,627.00	5.40	341.30	1,625.81	40.64	-26.09	667,042.7195	845,361.1730	0.84	0.63	-40.94
1,722.00	6.20	339.60	1,720.32	49.69	-29.31	667,051.7621	845,357.9516	0.84	-1.79	-50.02
1,817.00	7.50	339.20	1,814.64	60.29	-33.30	667,062.3667	845,353.9616	1.37	-0.42	-60.67
1,988.00	9.10	340.60	1,983.85	83.48	-41.75	667,085.5556	845,345.5064	0.94	0.82	-83.95
2,085.00	10.30	340.00	2,079.46	98.86	-47.27	667,100.9402	845,339.9923	1.24	-0.62	-99.39
2,199.00	7.60	337.00	2,192.06	115.38	-53.70	667,117.4598	845,333.5597	-2.37	-2.63	-115.99
2,294.00	6.20	337.90	2,286.37	125.92	-58.08	667,127.9962	845,329.1749	-1.47	0.95	-126.57
2,389.00	4.50	342.90	2,380.95	134.24	-61.11	667,136.3119	845,326.1488	-1.79	5.26	-134.92

Stryker Directional
Stryker Standard Survey



Company: Manzano
Project: Lea County, NM (NAD 83)
Site: Vindicator Canyon State Unit 22-27 CNLC
Well: Vindicator Canyon State Unit 22-27 CNLC #3H
Wellbore: Wellbore #2
Design: Surveys

Local Co-ordinate Reference: Well Vindicator Canyon State Unit 22-27 CNLC #3
TVD Reference: WELL @ 3871.00usft (H&P 489)
MD Reference: WELL @ 3871.00usft (H&P 489)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5000

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)
2,483.00	2.90	336.10	2,474.75	139.94	-63.16	667,142.0109	845,324.1010	-1.70	-7.23	-140.64
2,578.00	1.00	5.40	2,569.70	142.96	-64.05	667,145.0336	845,323.2053	-2.00	30.84	-143.68
2,673.00	0.30	50.40	2,664.69	143.94	-63.78	667,146.0175	845,323.4749	-0.74	47.37	-144.66
2,768.00	0.30	165.60	2,759.69	143.86	-63.53	667,145.9351	845,323.7284	0.00	121.26	-144.57
2,863.00	1.20	155.90	2,854.68	142.71	-63.06	667,144.7861	845,324.1964	0.95	-10.21	-143.42
2,957.00	1.60	157.60	2,948.65	140.60	-62.16	667,142.6743	845,325.0985	0.43	1.81	-141.30
3,052.00	1.80	140.70	3,043.61	138.22	-60.71	667,140.2935	845,326.5489	0.21	-17.79	-138.90
3,147.00	1.80	134.60	3,138.57	136.02	-58.70	667,138.0913	845,328.5562	0.00	-6.42	-136.67
3,242.00	1.90	133.90	3,233.52	133.88	-56.51	667,135.9517	845,330.7534	0.11	-0.74	-134.51
3,336.00	2.00	126.40	3,327.46	131.82	-54.06	667,133.8978	845,333.1965	0.11	-7.98	-132.43
3,431.00	1.90	124.40	3,422.41	129.95	-51.43	667,132.0243	845,335.8302	-0.11	-2.11	-130.52
3,526.00	1.80	113.40	3,517.36	128.47	-48.76	667,130.5420	845,338.4990	-0.11	-11.58	-129.01
3,621.00	1.80	110.50	3,612.31	127.35	-45.99	667,129.4270	845,341.2658	0.00	-3.05	-127.87
3,715.00	1.80	111.70	3,706.26	126.29	-43.24	667,128.3641	845,344.0203	0.00	1.28	-126.77
3,810.00	2.40	139.80	3,801.20	124.22	-40.57	667,126.2931	845,346.6905	0.63	29.58	-124.67
3,905.00	2.40	136.60	3,896.12	121.25	-37.92	667,123.3286	845,349.3411	0.00	-3.37	-121.68
4,000.00	2.50	169.50	3,991.04	117.77	-36.17	667,119.8460	845,351.0854	0.11	34.63	-118.17
4,095.00	2.20	164.30	4,085.96	113.98	-35.30	667,116.0533	845,351.9564	-0.32	-5.47	-114.37
4,189.00	2.00	162.20	4,179.89	110.68	-34.31	667,112.7547	845,352.9461	-0.21	-2.23	-111.06
4,284.00	1.90	155.90	4,274.84	107.66	-33.16	667,109.7387	845,354.0959	-0.11	-6.63	-108.03
4,379.00	1.50	151.90	4,369.80	105.13	-31.93	667,107.2043	845,355.3246	-0.42	-4.21	-105.48
4,473.00	1.50	147.00	4,463.76	103.01	-30.68	667,105.0871	845,356.5742	0.00	-5.21	-103.35
4,568.00	1.10	148.50	4,558.74	101.19	-29.53	667,103.2668	845,357.7279	-0.42	1.58	-101.52
4,663.00	1.10	141.80	4,653.72	99.70	-28.49	667,101.7727	845,358.7682	0.00	-7.05	-100.01
4,757.00	1.50	203.50	4,747.70	97.86	-28.42	667,099.9353	845,358.8356	0.43	65.64	-98.18
4,852.00	1.60	207.90	4,842.67	95.55	-29.54	667,097.6229	845,357.7192	0.11	4.63	-95.88
4,947.00	1.40	207.20	4,937.63	93.34	-30.69	667,095.4186	845,356.5681	-0.21	-0.74	-93.69

Stryker Directional
Stryker Standard Survey



Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)	
5,042.00	1.50	212.10	5,032.60	91.26	-31.88	667,093.3331	845,355.3769	0.11	5.16	-91.61	
5,137.00	1.30	212.90	5,127.58	89.30	-33.13	667,091.3749	845,354.1308	-0.21	0.84	-89.67	
5,231.00	2.40	169.70	5,221.53	86.47	-33.36	667,088.5430	845,353.9035	1.17	-45.96	-86.84	
5,326.00	2.30	168.00	5,316.45	82.65	-32.60	667,084.7213	845,354.6555	-0.11	-1.79	-83.01	
5,421.00	2.30	167.30	5,411.37	78.92	-31.79	667,080.9971	845,355.4709	0.00	-0.74	-79.28	
5,516.00	2.10	165.40	5,506.30	75.38	-30.93	667,077.4531	845,356.3288	-0.21	-2.00	-75.72	
5,611.00	2.10	169.80	5,601.24	71.98	-30.18	667,074.0557	845,357.0757	0.00	4.63	-72.32	
5,705.00	2.20	161.40	5,695.17	68.58	-29.30	667,070.6506	845,357.9562	0.11	-8.94	-68.90	
5,800.00	2.40	163.60	5,790.10	64.94	-28.16	667,067.0143	845,359.0994	0.21	2.32	-65.25	
5,895.00	2.30	159.30	5,885.02	61.25	-26.92	667,063.3229	845,360.3348	-0.11	-4.53	-61.55	
5,990.00	2.30	163.60	5,979.94	57.64	-25.71	667,059.7110	845,361.5469	0.00	4.53	-57.92	
6,085.00	2.20	161.00	6,074.87	54.08	-24.58	667,056.1582	845,362.6787	-0.11	-2.74	-54.36	
6,179.00	2.40	157.20	6,168.79	50.56	-23.23	667,052.6379	845,364.0288	0.21	-4.04	-50.82	
6,274.00	2.30	155.00	6,263.71	47.00	-21.65	667,049.0766	845,365.6052	-0.11	-2.32	-47.24	
6,368.00	2.20	160.50	6,357.64	43.59	-20.25	667,045.6664	845,367.0046	-0.11	5.85	-43.82	
6,463.00	2.20	157.60	6,452.57	40.19	-18.95	667,042.2617	845,368.3082	0.00	-3.05	-40.40	
6,558.00	2.20	165.00	6,547.50	36.74	-17.78	667,038.8146	845,369.4750	0.00	7.79	-36.94	
6,653.00	2.20	164.60	6,642.43	33.22	-16.83	667,035.2953	845,370.4311	0.00	-0.42	-33.41	
6,747.00	2.20	167.20	6,736.36	29.72	-15.95	667,031.7965	845,371.3100	0.00	2.77	-29.90	
6,842.00	2.10	167.30	6,831.29	26.25	-15.16	667,028.3204	845,372.0966	-0.11	0.11	-26.42	
6,937.00	2.00	167.50	6,926.23	22.93	-14.42	667,025.0040	845,372.8381	-0.11	0.21	-23.09	
7,031.00	2.00	167.00	7,020.18	19.73	-13.70	667,021.8043	845,373.5621	0.00	-0.53	-19.88	
7,126.00	1.90	167.90	7,115.12	16.57	-12.99	667,018.6492	845,374.2651	-0.11	0.95	-16.72	
7,221.00	1.80	170.30	7,210.07	13.56	-12.41	667,015.6386	845,374.8466	-0.11	2.53	-13.70	
7,316.00	1.80	167.60	7,305.02	10.64	-11.84	667,012.7108	845,375.4184	0.00	-2.84	-10.77	
7,411.00	1.80	171.60	7,399.98	7.70	-11.30	667,009.7776	845,375.9567	0.00	4.21	-7.83	
7,505.00	1.90	170.60	7,493.93	4.70	-10.83	667,006.7797	845,376.4269	0.11	-1.06	-4.83	

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Stryker Directional
Stryker Standard Survey



Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)	
7,600.00	1.90	166.80	7,588.88	1.62	-10.22	667,003.6927	845,377.0437	0.00	-4.00	-1.73	
7,695.00	1.60	136.00	7,683.83	-0.87	-8.93	667,001.2054	845,378.3247	-0.32	-32.42	0.77	
7,790.00	1.40	134.40	7,778.80	-2.64	-7.18	666,999.4393	845,380.0752	-0.21	-1.68	2.55	
7,884.00	1.10	139.30	7,872.78	-4.12	-5.78	666,997.9519	845,381.4840	-0.32	5.21	4.06	
7,979.00	1.00	140.00	7,967.76	-5.45	-4.65	666,996.6255	845,382.6115	-0.11	0.74	5.40	
8,074.00	0.50	145.00	8,062.75	-6.42	-3.88	666,995.6509	845,383.3821	-0.53	5.26	6.38	
8,169.00	0.30	133.60	8,157.75	-6.94	-3.46	666,995.1398	845,383.8000	-0.21	-12.00	6.90	
8,264.00	0.40	327.30	8,252.75	-6.83	-3.46	666,995.2474	845,383.8009	0.11	-175.05	6.79	
8,358.00	0.70	329.20	8,346.75	-6.06	-3.93	666,996.0167	845,383.3297	0.32	2.02	6.01	
8,453.00	0.70	326.20	8,441.74	-5.08	-4.55	666,996.9974	845,382.7097	0.00	-3.16	5.03	
8,548.00	1.00	324.00	8,536.73	-3.92	-5.36	666,998.1503	845,381.8996	0.32	-2.32	3.86	
8,643.00	1.40	331.40	8,631.71	-2.24	-6.40	666,999.8399	845,380.8568	0.42	7.79	2.16	
8,737.00	1.50	337.10	8,725.68	-0.09	-7.43	667,001.9814	845,379.8284	0.11	6.06	0.01	
8,832.00	1.80	345.50	8,820.64	2.50	-8.29	667,004.5713	845,378.9709	0.32	8.84	-2.59	
8,927.00	2.40	358.90	8,915.57	5.93	-8.70	667,008.0046	845,378.5592	0.63	14.11	-6.03	
9,022.00	2.40	358.10	9,010.49	9.91	-8.80	667,011.9813	845,378.4550	0.00	-0.84	-10.01	
9,117.00	1.20	349.00	9,105.44	12.87	-9.06	667,014.9459	845,378.1993	-1.26	-9.58	-12.97	
9,211.00	1.30	351.40	9,199.42	14.89	-9.41	667,016.9665	845,377.8520	0.11	2.55	-15.00	
9,306.00	2.00	349.40	9,294.38	17.59	-9.87	667,019.6615	845,377.3859	0.74	-2.11	-17.70	
9,401.00	2.50	347.10	9,389.31	21.24	-10.64	667,023.3105	845,376.6184	0.53	-2.42	-21.35	
9,496.00	1.00	6.20	9,484.26	24.08	-11.01	667,026.1545	845,376.2454	-1.58	20.11	-24.20	
9,591.00	1.10	14.00	9,579.24	25.79	-10.70	667,027.8634	845,376.5555	0.11	8.21	-25.91	
9,685.00	1.20	22.80	9,673.23	27.57	-10.10	667,029.6463	845,377.1552	0.11	9.36	-27.68	
9,780.00	1.40	19.60	9,768.20	29.58	-9.33	667,031.6566	845,377.9300	0.21	-3.37	-29.69	
9,875.00	1.50	5.30	9,863.17	31.91	-8.82	667,033.9880	845,378.4342	0.11	-15.05	-32.01	
9,970.00	1.80	350.10	9,958.13	34.62	-8.97	667,036.6959	845,378.2925	0.32	-16.00	-34.72	
10,065.00	0.40	223.20	10,053.12	35.85	-9.45	667,037.9241	845,377.8089	-1.47	-133.58	-35.95	



Stryker Directional
Stryker Standard Survey



Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)	
10,160.00	0.60	236.30	10,148.11	35.33	-10.09	667,037.4064	845,377.1681	0.21	13.79	-35.44	
10,254.00	1.00	276.70	10,242.11	35.15	-11.32	667,037.2290	845,375.9440	0.43	42.98	-35.28	
10,349.00	1.20	290.50	10,337.09	35.60	-13.07	667,037.6741	845,374.1889	0.21	14.53	-35.74	
10,444.00	1.10	277.10	10,432.07	36.06	-14.91	667,038.1352	845,372.3522	-0.11	-14.11	-36.23	
10,539.00	1.10	289.00	10,527.05	36.47	-16.67	667,038.5448	845,370.5851	0.00	12.53	-36.66	
10,634.00	1.00	284.60	10,622.04	36.98	-18.34	667,039.0506	845,368.9207	-0.11	-4.63	-37.18	
10,729.00	1.80	177.00	10,717.02	35.69	-19.06	667,037.7694	845,368.1965	0.84	-113.26	-35.91	
10,823.00	2.10	174.30	10,810.96	32.51	-18.81	667,034.5814	845,368.4448	0.32	-2.87	-32.72	
10,918.00	1.70	162.90	10,905.91	29.43	-18.23	667,031.5026	845,369.0320	-0.42	-12.00	-29.63	
11,013.00	1.50	168.40	11,000.87	26.86	-17.56	667,028.9377	845,369.6964	-0.21	5.79	-27.06	
11,107.00	1.70	165.40	11,094.84	24.31	-16.96	667,026.3832	845,370.2952	0.21	-3.19	-24.50	
11,202.00	1.70	168.20	11,189.80	21.56	-16.32	667,023.6402	845,370.9386	0.00	2.95	-21.75	
11,297.00	1.80	166.90	11,284.75	18.73	-15.69	667,020.8076	845,371.5649	0.11	-1.37	-18.91	
11,348.00	1.70	165.90	11,335.73	17.22	-15.33	667,019.2938	845,371.9308	-0.20	-1.96	-17.39	
11,391.00	1.70	169.70	11,378.71	15.97	-15.06	667,018.0477	845,372.2002	0.00	8.84	-16.14	
11,423.00	1.80	177.00	11,410.69	15.00	-14.95	667,017.0788	845,372.3114	0.31	22.81	-15.17	
11,471.00	6.50	171.80	11,458.56	11.56	-14.52	667,013.6349	845,372.7386	9.79	-10.83	-11.72	
11,518.00	13.70	167.00	11,504.80	3.49	-12.89	667,005.5680	845,374.3722	15.32	-10.21	-3.64	
11,566.00	18.80	164.90	11,550.86	-9.52	-9.59	666,992.5536	845,377.6679	10.62	-4.37	9.41	
11,613.00	22.50	165.00	11,594.84	-25.53	-5.29	666,976.5496	845,381.9698	7.87	0.21	25.46	
11,661.00	26.10	167.40	11,638.58	-44.71	-0.61	666,957.3671	845,386.6518	7.50	5.00	44.70	
11,708.00	26.70	169.90	11,680.68	-65.19	3.50	666,936.8813	845,390.7590	1.28	5.32	65.23	
11,756.00	25.80	173.80	11,723.73	-86.20	6.52	666,915.8783	845,393.7785	-1.87	8.12	86.27	
11,803.00	25.70	176.30	11,766.06	-106.54	8.28	666,895.5399	845,395.5408	-0.21	5.32	106.62	
11,849.00	27.40	176.60	11,807.21	-127.06	9.55	666,875.0190	845,396.8123	3.70	0.65	127.16	
11,898.00	30.50	177.50	11,850.08	-150.74	10.76	666,851.3352	845,398.0236	6.33	1.84	150.85	
11,946.00	34.60	181.60	11,890.54	-176.55	10.92	666,825.5288	845,398.1745	8.54	8.54	176.66	



Stryker Directional
Stryker Standard Survey



Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)
11,993.00	38.90	182.80	11,928.19	-204.64	9.82	666,797.4366	845,397.0805	9.15	2.55	204.74
12,041.00	45.50	183.30	11,963.73	-236.82	8.10	666,765.2581	845,395.3570	13.75	1.04	236.89
12,088.00	52.20	183.20	11,994.64	-272.13	6.09	666,729.9446	845,393.3533	14.26	-0.21	272.18
12,135.00	59.60	181.80	12,020.97	-310.98	4.42	666,691.0905	845,391.6778	15.74	-2.98	311.01
12,182.00	67.90	179.70	12,041.74	-353.09	3.90	666,648.9809	845,391.1541	17.66	-4.47	353.12
12,230.00	71.70	179.10	12,058.32	-398.13	4.37	666,603.9442	845,391.6286	7.92	-1.25	398.16
12,277.00	73.00	179.00	12,072.57	-442.91	5.11	666,559.1638	845,392.3713	2.77	-0.21	442.94
12,325.00	77.20	181.80	12,084.91	-489.28	4.78	666,512.7946	845,392.0366	8.75	5.83	489.30
12,372.00	83.40	183.20	12,092.82	-535.54	2.75	666,466.5346	845,390.0116	13.19	2.98	535.54
12,420.00	87.00	181.00	12,096.84	-583.33	1.00	666,418.7458	845,388.2617	7.50	-4.58	583.30
12,467.00	90.10	179.20	12,098.03	-630.31	0.92	666,371.7686	845,388.1802	6.60	-3.83	630.28
12,515.00	91.00	178.10	12,097.57	-678.29	2.05	666,323.7854	845,389.3109	1.87	-2.29	678.27
12,585.00	91.30	178.30	12,096.16	-748.24	4.25	666,253.8341	845,391.5092	0.43	0.29	748.24
12,679.00	92.20	178.00	12,093.29	-842.15	7.28	666,159.9280	845,394.5423	0.96	-0.32	842.18
12,774.00	92.40	178.80	12,089.48	-937.03	9.93	666,065.0424	845,397.1928	0.21	0.84	937.09
12,869.00	90.80	178.70	12,086.83	-1,031.97	12.01	665,970.1051	845,399.2643	-1.68	-0.11	1,032.04
12,964.00	91.60	178.30	12,084.84	-1,126.92	14.49	665,875.1595	845,401.7505	0.84	-0.42	1,127.01
13,059.00	91.00	179.50	12,082.68	-1,221.87	16.31	665,780.2036	845,403.5737	-0.63	1.26	1,221.98
13,154.00	89.90	179.80	12,081.94	-1,316.87	16.89	665,685.2098	845,404.1539	-1.16	0.32	1,316.97
13,249.00	90.70	179.20	12,081.44	-1,411.86	17.72	665,590.2160	845,404.9829	0.84	-0.63	1,411.97
13,344.00	91.60	178.50	12,079.53	-1,506.82	19.63	665,495.2558	845,406.8891	0.95	-0.74	1,506.95
13,439.00	92.70	177.70	12,075.97	-1,601.70	22.78	665,400.3771	845,410.0363	1.16	-0.84	1,601.85
13,533.00	93.20	179.00	12,071.13	-1,695.53	25.48	665,306.5429	845,412.7395	0.53	1.38	1,695.71
13,628.00	93.20	180.50	12,065.83	-1,790.38	25.89	665,211.6947	845,413.1533	0.00	1.58	1,790.56
13,723.00	93.90	180.10	12,059.95	-1,885.20	25.40	665,116.8790	845,412.6568	0.74	-0.42	1,885.36
13,818.00	93.40	180.40	12,053.90	-1,980.00	24.98	665,022.0731	845,412.2430	-0.53	0.32	1,980.16
13,913.00	91.70	181.50	12,049.67	-2,074.89	23.41	664,927.1851	845,410.6690	-1.79	1.16	2,075.02

Stryker Directional
Stryker Standard Survey



Company: Manzano
Project: Lea County, NM (NAD 83)
Site: Vindicator Canyon State Unit 22-27 CNLC
Well: Vindicator Canyon State Unit 22-27 CNLC #3H
Wellbore: Wellbore #2
Design: Surveys

Local Co-ordinate Reference: Well Vindicator Canyon State Unit 22-27 CNLC #3
TVD Reference: WELL @ 3871.00usft (H&P 489)
MD Reference: WELL @ 3871.00usft (H&P 489)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5000

Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)
14,008.00	92.30	181.40	12,046.36	-2,169.80	21.01	664,832.2738	845,408.2665	0.63	-0.11	2,169.90
14,102.00	91.60	181.00	12,043.16	-2,263.73	19.04	664,738.3497	845,406.2991	-0.74	-0.43	2,263.80
14,197.00	92.50	180.50	12,039.76	-2,358.66	17.80	664,643.4199	845,405.0563	0.95	-0.53	2,358.71
14,292.00	92.20	180.30	12,035.86	-2,453.57	17.13	664,548.5022	845,404.3937	-0.32	-0.21	2,453.61
14,387.00	93.10	180.20	12,031.47	-2,548.47	16.72	664,453.6057	845,403.9796	0.95	-0.11	2,548.50
14,481.00	91.80	180.20	12,027.45	-2,642.38	16.39	664,359.6942	845,403.6518	-1.38	0.00	2,642.40
14,576.00	92.70	180.00	12,023.72	-2,737.31	16.23	664,264.7686	845,403.4860	0.95	-0.21	2,737.31
14,671.00	93.70	180.10	12,018.42	-2,832.16	16.14	664,169.9180	845,403.4033	1.05	0.11	2,832.16
14,766.00	93.30	180.20	12,012.62	-2,926.98	15.90	664,075.0957	845,403.1550	-0.42	0.11	2,926.97
14,860.00	92.80	179.10	12,007.62	-3,020.84	16.47	663,981.2324	845,403.7286	-0.53	-1.17	3,020.84
14,955.00	93.80	178.70	12,002.15	-3,115.67	18.29	663,886.4088	845,405.5492	1.05	-0.42	3,115.67
15,050.00	93.70	179.20	11,995.94	-3,210.45	20.03	663,791.6284	845,407.2863	-0.11	0.53	3,210.47
15,145.00	93.10	179.70	11,990.30	-3,305.27	20.94	663,696.8008	845,408.1965	-0.63	0.53	3,305.30
15,240.00	94.00	179.50	11,984.42	-3,400.09	21.60	663,601.9864	845,408.8583	0.95	-0.21	3,400.12
15,335.00	92.30	178.50	11,979.20	-3,494.93	23.26	663,507.1491	845,410.5144	-1.79	-1.05	3,494.97
15,430.00	92.70	177.60	11,975.06	-3,589.78	26.48	663,412.2956	845,413.7438	0.42	-0.95	3,589.85
15,525.00	92.00	178.90	11,971.16	-3,684.65	29.38	663,317.4224	845,416.6421	-0.74	1.37	3,684.75
15,620.00	92.90	178.30	11,967.10	-3,779.54	31.70	663,222.5390	845,418.9609	0.95	-0.63	3,779.65
15,714.00	94.10	177.80	11,961.36	-3,873.30	34.89	663,128.7707	845,422.1531	1.28	-0.53	3,873.45
15,809.00	94.00	179.80	11,954.65	-3,968.04	36.88	663,034.0335	845,424.1375	-0.11	2.11	3,968.20
15,904.00	92.40	179.80	11,949.35	-4,062.89	37.21	662,939.1853	845,424.4686	-1.68	0.00	4,063.05
15,998.00	93.10	179.60	11,944.84	-4,156.78	37.70	662,845.2955	845,424.9601	0.74	-0.21	4,156.94
16,093.00	94.10	179.50	11,938.87	-4,251.59	38.45	662,750.4871	845,425.7047	1.05	-0.11	4,251.75
16,188.00	93.10	179.80	11,932.91	-4,346.40	39.02	662,655.6776	845,426.2838	-1.05	0.32	4,346.56
16,283.00	91.80	178.60	11,928.85	-4,441.30	40.35	662,560.7775	845,427.6094	-1.37	-1.26	4,441.47
16,377.00	92.60	178.40	11,925.24	-4,535.20	42.81	662,466.8798	845,430.0681	0.85	-0.21	4,535.39
16,472.00	93.50	178.40	11,920.18	-4,630.02	45.46	662,372.0523	845,432.7169	0.95	0.00	4,630.24



Stryker Directional
Stryker Standard Survey



Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)	
16,567.00	92.30	178.70	11,915.38	-4,724.87	47.86	662,277.2062	845,435.1176	-1.26	0.32	4,725.11	
16,662.00	93.20	178.30	11,910.82	-4,819.73	50.34	662,182.3493	845,437.6014	0.95	-0.42	4,819.99	
16,756.00	93.20	178.90	11,905.57	-4,913.55	52.64	662,088.5243	845,439.8944	0.00	0.64	4,913.83	
16,851.00	92.10	179.10	11,901.18	-5,008.43	54.29	661,993.6419	845,441.5505	-1.16	0.21	5,008.73	
16,946.00	92.90	178.70	11,897.04	-5,103.32	56.11	661,898.7507	845,443.3724	0.84	-0.42	5,103.63	
17,041.00	92.40	179.00	11,892.64	-5,198.20	58.02	661,803.8718	845,445.2770	-0.53	0.32	5,198.53	
17,136.00	93.10	178.70	11,888.09	-5,293.07	59.92	661,709.0011	845,447.1813	0.74	-0.32	5,293.41	
17,231.00	94.00	177.90	11,882.20	-5,387.85	62.73	661,614.2268	845,449.9938	0.95	-0.84	5,388.21	
17,326.00	91.80	178.60	11,877.40	-5,482.68	65.63	661,519.3991	845,452.8905	-2.32	0.74	5,483.07	
17,436.00	93.00	180.60	11,872.79	-5,592.57	66.40	661,409.5059	845,453.6586	1.09	1.82	5,592.96	
17,531.00	92.80	177.60	11,867.98	-5,687.43	67.89	661,314.6502	845,455.1489	-0.21	-3.16	5,687.83	
17,626.00	92.90	177.20	11,863.26	-5,782.21	72.19	661,219.8656	845,459.4530	0.11	-0.42	5,782.66	
17,721.00	92.70	177.00	11,858.62	-5,876.97	76.99	661,125.1006	845,464.2536	-0.21	-0.21	5,877.47	
17,816.00	93.50	177.50	11,853.48	-5,971.73	81.55	661,030.3500	845,468.8050	0.84	0.53	5,972.27	
17,911.00	92.10	178.50	11,848.84	-6,066.55	84.86	660,935.5247	845,472.1159	-1.47	1.05	6,067.12	
18,006.00	92.30	180.80	11,845.19	-6,161.47	85.44	660,840.6030	845,472.6958	0.21	2.42	6,162.05	
18,101.00	91.70	181.10	11,841.88	-6,256.40	83.86	660,745.6744	845,471.1217	-0.63	0.32	6,256.95	
18,195.00	92.30	181.10	11,838.60	-6,350.33	82.06	660,651.7495	845,469.3182	0.64	0.00	6,350.85	
Tie-in - 18195.00' MD											
18,300.00	91.50	182.00	11,835.12	-6,455.23	79.22	660,546.8475	845,466.4795	-0.76	0.86	6,455.71	
18,395.00	90.40	181.50	11,833.54	-6,550.17	76.32	660,451.9066	845,463.5788	-1.16	-0.53	6,550.61	
18,489.00	90.90	181.70	11,832.48	-6,644.13	73.70	660,357.9497	845,460.9544	0.53	0.21	6,644.53	
18,584.00	89.40	179.60	11,832.23	-6,739.11	72.62	660,262.9641	845,459.8768	-1.58	-2.21	6,739.50	
18,679.00	90.00	180.10	11,832.72	-6,834.11	72.87	660,167.9665	845,460.1255	0.63	0.53	6,834.50	
18,774.00	89.20	180.70	11,833.39	-6,929.10	72.20	660,072.9723	845,459.4623	-0.84	0.63	6,929.48	
18,869.00	89.70	180.40	11,834.30	-7,024.09	71.29	659,977.9815	845,458.5505	0.53	-0.32	7,024.45	
18,964.00	90.00	180.30	11,834.55	-7,119.09	70.71	659,882.9837	845,457.9702	0.32	-0.11	7,119.44	



Stryker Directional
Stryker Standard Survey



Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	Build (°/100usft)	Turn (°/100usft)	V. Sec (usft)
19,058.00	90.50	180.60	11,834.14	-7,213.09	69.97	659,788.9879	845,457.2319	0.53	0.32	7,213.42
19,153.00	89.20	179.50	11,834.39	-7,308.08	69.89	659,693.9918	845,457.1490	-1.37	-1.16	7,308.41
19,248.00	89.20	179.60	11,835.71	-7,403.07	70.64	659,599.0040	845,457.8950	0.00	0.11	7,403.40
19,343.00	89.70	179.70	11,836.62	-7,498.06	71.22	659,504.0104	845,458.4753	0.53	0.11	7,498.39
19,438.00	90.70	180.40	11,836.29	-7,593.06	71.13	659,409.0129	845,458.3924	1.05	0.74	7,593.38
19,533.00	89.80	178.40	11,835.88	-7,688.05	72.13	659,314.0248	845,459.3872	-0.95	-2.11	7,688.37
19,627.00	90.30	178.60	11,835.80	-7,782.02	74.59	659,220.0574	845,461.8479	0.53	0.21	7,782.36
19,722.00	90.80	178.60	11,834.88	-7,876.98	76.91	659,125.0904	845,464.1688	0.53	0.00	7,877.35
19,817.00	91.80	178.60	11,832.73	-7,971.93	79.23	659,030.1444	845,466.4892	1.05	0.00	7,972.32
19,912.00	89.30	180.60	11,831.82	-8,066.91	79.89	658,935.1635	845,467.1520	-2.63	2.11	8,067.30
20,006.00	89.80	180.70	11,832.56	-8,160.90	78.83	658,841.1727	845,466.0857	0.53	0.11	8,161.27
20,101.00	90.80	181.00	11,832.06	-8,255.89	77.42	658,746.1858	845,464.6764	1.05	0.32	8,256.24
20,195.00	91.80	181.50	11,829.93	-8,349.84	75.37	658,652.2338	845,462.6264	1.06	0.53	8,350.16
20,290.00	90.80	180.30	11,827.77	-8,444.80	73.88	658,557.2729	845,461.1349	-1.05	-1.26	8,445.10
20,385.00	90.50	180.10	11,826.69	-8,539.80	73.54	658,462.2798	845,460.8033	-0.32	-0.21	8,540.08
20,480.00	91.50	179.90	11,825.03	-8,634.78	73.54	658,367.2955	845,460.8033	1.05	-0.21	8,635.06
20,574.00	90.90	179.10	11,823.07	-8,728.75	74.36	658,273.3209	845,461.6234	-0.64	-0.85	8,729.04
20,669.00	89.40	178.70	11,822.82	-8,823.73	76.19	658,178.3416	845,463.4472	-1.58	-0.42	8,824.03
20,764.00	89.50	178.90	11,823.73	-8,918.71	78.18	658,083.3669	845,465.4366	0.11	0.21	8,919.02
20,859.00	91.70	178.90	11,822.73	-9,013.68	80.00	657,988.3955	845,467.2601	2.32	0.00	9,014.01
20,953.00	91.60	178.60	11,820.03	-9,107.62	82.05	657,894.4569	845,469.3099	-0.11	-0.32	9,107.96
21,003.00	90.30	178.30	11,819.20	-9,157.59	83.40	657,844.4832	845,470.6622	-2.60	-0.60	9,157.95
21,052.00	90.30	178.30	11,818.94	-9,206.57	84.86	657,795.5054	845,472.1158	0.00	0.00	9,206.94

Projection to TD - 21052.00' MD



Stryker Directional Stryker Standard Survey



Company:	Manzano	Local Co-ordinate Reference:	Well Vindicator Canyon State Unit 22-27 CNLC #3
Project:	Lea County, NM (NAD 83)	TVD Reference:	WELL @ 3871.00usft (H&P 489)
Site:	Vindicator Canyon State Unit 22-27 CNLC	MD Reference:	WELL @ 3871.00usft (H&P 489)
Well:	Vindicator Canyon State Unit 22-27 CNLC #3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM5000

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
18,195.00	11,838.60	-6,350.33	82.06	Tie-in - 18195.00' MD
21,052.00	11,818.94	-9,206.57	84.86	Projection to TD - 21052.00' MD

Checked By: _____ Approved By: _____ Date: _____

Intent As Drilled

API #									
Operator Name:					Property Name:				Well Number

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Is this well the defining well for the Horizontal Spacing Unit?

Is this well an infill well?

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #									
Operator Name:					Property Name:				Well Number

KZ 06/29/2018

District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II 811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720 District III 1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170 District IV 1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462	State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 S. St Francis Dr. Santa Fe, NM 87505	Form C-103 August 1, 2011 Permit 298081 WELL API NUMBER 30-025-48404 5. Indicate Type of Lease P 6. State Oil & Gas Lease No.																								
SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		7. Lease Name or Unit Agreement Name VINDICATOR CANYON 22 27 STATE UNIT CNLC																								
1. Type of Well: O		8. Well Number 003H																								
2. Name of Operator MANZANO LLC		9. OGRID Number 231429																								
3. Address of Operator P.O. Box 1737, Roswell, NM 88202		10. Pool name or Wildcat																								
4. Well Location Unit Letter <u>N</u> : <u>715</u> feet from the <u>S</u> line and feet <u>2310</u> from the <u>W</u> line Section <u>15</u> Township <u>17S</u> Range <u>36E</u> NMPM _____ County <u>Lea</u>																										
11. Elevation (Show whether DR, KB, BT, GR, etc.) 3846 GR																										
Pit or Below-grade Tank Application <input type="checkbox"/> or Closure <input type="checkbox"/> Pit Type _____ Depth to Groundwater _____ Distance from nearest fresh water well _____ Distance from nearest surface water _____ Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____																										
12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data NOTICE OF INTENTION TO: PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> CHANGE OF PLANS <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPL <input type="checkbox"/> Other: _____ SUBSEQUENT REPORT OF: REMEDIAL WORK <input type="checkbox"/> ALTER CASING <input type="checkbox"/> COMMENCE DRILLING OPNS. <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> CASING/CEMENT JOB <input type="checkbox"/> Other: <u>Perforations/Tubing</u> <input checked="" type="checkbox"/>																										
13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work.) SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.																										
Perforate & Frac <div style="text-align: center;">Perforations</div> Pool: WC-025 G-09 S173615C; UPPER PENN , 98333 Location: C -23-17S-36E 104 N 2308 W <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>TOP</th> <th>BOT</th> <th>Open Hole</th> <th>Shots/ft</th> <th>Shot Size</th> <th>Material</th> <th>Stimulation</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>12655</td> <td>13812</td> <td>N</td> <td>5</td> <td>0.39</td> <td>Sand/Water</td> <td>Frac</td> <td></td> </tr> </tbody> </table> <div style="text-align: center;">Tubing</div> WC-025 G-09 S173615C;UPPER PENN , 98333 <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Tubing Size</th> <th>Type</th> <th>Depth Set</th> <th>Packer Set</th> </tr> </thead> <tbody> <tr> <td>2.875</td> <td>L80</td> <td>11420</td> <td>11420</td> </tr> </tbody> </table>			TOP	BOT	Open Hole	Shots/ft	Shot Size	Material	Stimulation	Amount	12655	13812	N	5	0.39	Sand/Water	Frac		Tubing Size	Type	Depth Set	Packer Set	2.875	L80	11420	11420
TOP	BOT	Open Hole	Shots/ft	Shot Size	Material	Stimulation	Amount																			
12655	13812	N	5	0.39	Sand/Water	Frac																				
Tubing Size	Type	Depth Set	Packer Set																							
2.875	L80	11420	11420																							
I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines <input type="checkbox"/> , a general permit <input type="checkbox"/> or an (attached) alternative OCD-approved plan <input type="checkbox"/> .																										
SIGNATURE	<u>Electronically Signed</u>	TITLE	<u>Manager</u>	DATE	<u>7/8/2021</u>																					
Type or print name	<u>Michael Hanagan</u>	E-mail address	<u>mike@manzanoenergy.com</u>	Telephone No.	<u>575-623-1996</u>																					
For State Use Only:																										
APPROVED BY:	<u>Kurt Simmons</u>	TITLE	<u>Petroleum Specialist - A</u>	DATE	<u>7/8/2021 3:56:14 PM</u>																					

Page 17 of 21
Received by OCD: 7/13/2021 10:17:23 AM
Released to Imaging: 8/26/2021 4:11:39 PM

Submit To Appropriate District Office Two Copies District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505	State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505	Form C-105 Revised April 3, 2017 1. WELL API NO. 30-025-48404 2. Type of Lease <input checked="" type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/> FED/INDIAN 3. State Oil & Gas Lease No. VO-9002-0005
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WELL COMPLETION OR RECOMPLETION REPORT AND LOG

4. Reason for filing: <input checked="" type="checkbox"/> COMPLETION REPORT (Fill in boxes #1 through #31 for State and Fee wells only) <input type="checkbox"/> C-144 CLOSURE ATTACHMENT (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)	5. Lease Name or Unit Agreement Name VINDICATOR CANYON 22-27 STATE UNIT CNLC 6. Well Number: 3H			
7. Type of Completion: <input checked="" type="checkbox"/> NEW WELL <input type="checkbox"/> WORKOVER <input type="checkbox"/> DEEPENING <input type="checkbox"/> PLUGBACK <input type="checkbox"/> DIFFERENT RESERVOIR <input type="checkbox"/> OTHER				
8. Name of Operator MANZANO, LLC				
10. Address of Operator P.O. BOX 1737 - ROSWELL, NM 88202-1737				
9. OGRID 231429				
11. Pool name or Wildcat WC-025 G-09 S173615C; UPPER PENN				
12. Location Surface: Unit Ltr Section Township Range Lot Feet from the N 15 17S 36E N 715 BH: K 27 17S 36E K 2116	N/S Line Feet from the E/W Line County S 2310 W LEA S 2313 W LEA			
13. Date Spudded 3/18/21	14. Date T.D. Reached 4/19/21	15. Date Rig Released 4/26/21	16. Date Completed (Ready to Produce) 6/12/21	17. Elevations (DF and RKB, RT, GR, etc.) 3871'RKB
18. Total Measured Depth of Well 21052	19. Plug Back Measured Depth 13815	20. Was Directional Survey Made? YES	21. Type Electric and Other Logs Run GAMMA RAY	
22. Producing Interval(s), of this completion - Top, Bottom, Name 12655, 13812. CANYON SHALE				

23. CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9.625	40	2106	12.25	700	0
7.625	29.7	11835	8.75	1395	0
5.5	20.0	16193	6.75	1085	0

24. LINER RECORD				25. TUBING RECORD			
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET
					2.875	11420	11420

26. Perforation record (interval, size, and number) 12655-13812, 0.39", 216 HOLES	27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC. DEPTH INTERVAL AMOUNT AND KIND MATERIAL USED 12655-13812 3,559,049#'s SAND + 91,839bbl SW
--	---

28. PRODUCTION							
Date First Production 6/12/21		Production Method (Flowing, gas lift, pumping - Size and type pump) FLOWING			Well Status (Prod. or Shut-in) PRODUCING		
Date of Test 6/18/21	Hours Tested 24	Choke Size 30/64	Prod'n For Test Period	Oil - Bbl 452	Gas - MCF 576	Water - Bbl. 358	Gas - Oil Ratio 1262:1
Flow Tubing Press. 242	Casing Pressure 0	Calculated 24-Hour Rate	Oil - Bbl. 452	Gas - MCF 576	Water - Bbl. 358	Oil Gravity - API - (Corr.) 47	
29. Disposition of Gas (Sold, used for fuel, vented, etc.) OLD						30. Test Witnessed By	

31. List Attachments DIRECTIONAL SURVEY, GAMMA RAY LOG, C102 "AS DRILLED", DIRECTIONAL SURVEY, ADDITIONAL POINTS	33. Rig Release Date: 4/26/21
32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.	
34. If an on-site burial was used at the well, report the exact location of the on-site burial:	

Latitude _____ Longitude _____ NAD83

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature 	Printed Name Michael G Hanagan	Title Manager	Date 7/11/21
E-mail Address mike@manzanoenergy.com			

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well and not later than 60 days after completion of closure. When submitted as a completion report, this shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 11, 12 and 26-31 shall be reported for each zone.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico		Northwestern New Mexico	
T. Anhy	2085	T. Canyon	11697
T. Salt	2190	T. Strawn	
B. Salt	3247	T. Atoka	
T. Yates	3358	T. Miss	
T. 7 Rivers		T. Devonian	
T. Queen	4412	T. Silurian	
T. Grayburg		T. Montoya	
T. San Andres	5290	T. Simpson	
T. Glorieta		T. McKee	
T. Paddock		T. Ellenburger	
T. Blinebry		T. Gr. Wash	
T. Tubb		T. Delaware Sand	
T. Drinkard		T. Bone Springs	
T. Abo		T.	
T. Wolfcamp	10060	T.	
T. Penn		T.	
T. Cisco (Bough C)		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from.....to..... No. 3, from.....to.....
 No. 2, from.....to..... No. 4, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....
 No. 2, from.....to.....feet.....
 No. 3, from.....to.....feet.....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology	From	To	Thickness In Feet	Lithology

Submit 1 Copy To Appropriate District Office
District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 1. Type of Well: Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/>		WELL API NO. 30-025-48404
2. Name of Operator MANZANO, LLC		5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
3. Address of Operator PO BOX 1737 - ROSWELL, NM 88202		6. State Oil & Gas Lease No. VO-9002-0005
4. Well Location Unit Letter <u>N</u> : <u>715</u> feet from the <u>SOUTH</u> line and <u>2310</u> feet from the <u>WEST</u> line Section <u>15</u> Township <u>17s</u> Range <u>36e</u> NMPM County LEA		7. Lease Name or Unit Agreement Name Vindicator Canyon 22-27 State Unit
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3871' RKB		8. Well Number #3H
9. OGRID Number 231429		10. Pool name or Wildcat WC-025 G-09 S173615C: UPPER PENN

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO: PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPL <input type="checkbox"/> DOWNHOLE COMMINGLE <input type="checkbox"/> CLOSED-LOOP SYSTEM <input type="checkbox"/> OTHER: <input type="checkbox"/>		SUBSEQUENT REPORT OF: REMEDIAL WORK <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> COMMENCE DRILLING OPNS. <input type="checkbox"/> P AND A <input type="checkbox"/> CASING/CEMENT JOB <input type="checkbox"/> OTHER: <input checked="" type="checkbox"/>	
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13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.
Drilled to total MD of 21052' but could not get 5.5" Production Casing past 16193'MD. Cemented the 5.5" Production Casing with 1085sx cement. Went in the hole with coil tubing to prep to frac & could not get past 13821'MD due to apparently collapsed casing. Set Bridge Plug @ 13815'MD & fraced well f/12655'-13812' in 6 stages with 3,559,049#'s of 100 mesh sand + 91,839bbls of slickwater. Clean out wellbore with coil tubing. Run packer on 2.875" L80 tubing to 11420'. Flow back to frac tanks for 4 days until we had enough gas to run vessels & then put the well into the battery

Spud Date: 3/18/21 Rig Release Date: 4/26/21

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE  TITLE MANAGER DATE 7/11/21

Type or print name MIKE HANAGAN E-mail address: mike@manzanoenergy.com PHONE: 575-623-1996
For State Use Only

APPROVED BY: _____ TITLE _____ DATE _____
Conditions of Approval (if any): _____

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

ACKNOWLEDGMENTS

Action 36151

ACKNOWLEDGMENTS

Operator: MANZANO LLC P.O. Box 1737 Roswell, NM 88202	OGRID: 231429
	Action Number: 36151
	Action Type: [C-104] Completion Packet (C-104C)

ACKNOWLEDGMENTS

<input checked="" type="checkbox"/>	I hereby certify that the required Water Use Report has been, or will be, submitted for this wells completion.
<input checked="" type="checkbox"/>	I hereby certify that the required FracFocus disclosure has been, or will be, submitted for this wells completion.

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Santa Fe, NM 87505

CONDITIONS
 Action 36151

CONDITIONS

Operator: MANZANO LLC P.O. Box 1737 Roswell, NM 88202	OGRID: 231429
	Action Number: 36151
	Action Type: [C-104] Completion Packet (C-104C)

CONDITIONS

Created By	Condition	Condition Date
ksimmons	None	8/26/2021