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-101
August 1, 2011

Permit 308617

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address	2. OGRID Number
MANZANO LLC P.O. Box 1737 Roswell, NM 88202	231429
	3. API Number 30-025-49781

4. Property Code	5. Property Name	6. Well No.
330293	VINDICATOR CANYON STATE UNIT	152H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
O	10	17S	36E	O	200	S	1420	E	Lea

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
G	22	17S	36E	G	2585	N	1420	E	Lea

9. Pool Information

WC-025 G-09 S173615C;UPPER PENN	98333

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
New Well	OIL		Private	3848
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	20500	Pennsylvanian Shale		3/1/2022
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ **We will be using a closed-loop system in lieu of lined pits**

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	9.625	40	2010	635	0
Int1	8.75	7.625	29.7	11250	1750	0
Prod	6.75	5.5	20	20500	1850	0

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	10000	10000	see attached BOP diagram
Annular	5000	5000	see attached BOP diagram

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.

Signature:

OIL CONSERVATION DIVISION

Printed Name:	Electronically filed by Michael Hanagan		Approved By:	Paul F Kautz	
Title:	Manager		Title:	Geologist	
Email Address:	mike@manzanoenergy.com		Approved Date:	2/18/2022	Expiration Date: 2/18/2024
Date:	2/17/2022	Phone: 575-623-1996	Conditions of Approval Attached		

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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

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	98333	WC 025 G-09 S173615C; Upper Penn

Property Code	Property Name	Well Number
330293	VINDICATOR CANYON STATE UNIT	152H

OGRID No.	Operator Name	Elevation
231429	MANZANO LLC	3848'

Surface Location

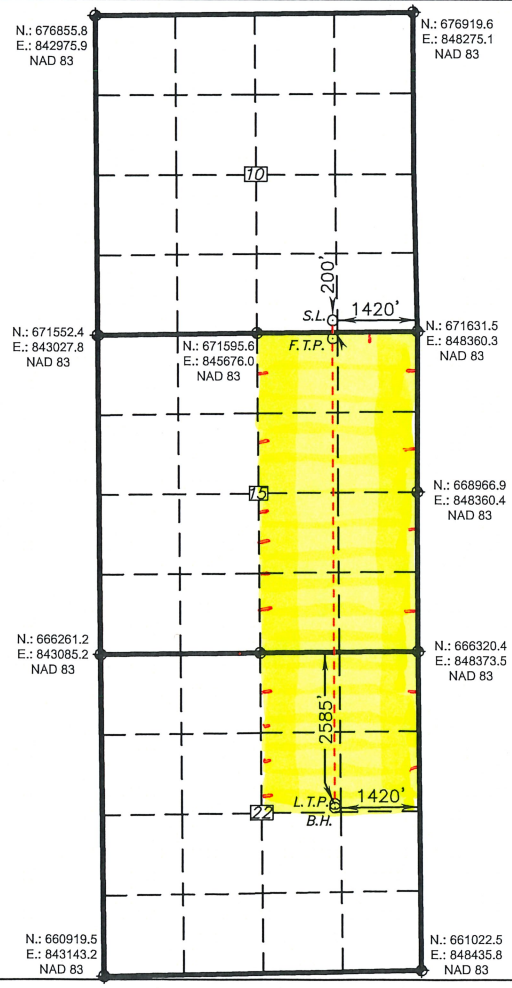
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	10	17 S	36 E		200	SOUTH	1420	EAST	LEA

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
G	22	17 S	36 E		2585	NORTH	1420	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
480		UNITIZED	R-21572 VINDICATOR CANYON STATE UNIT

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 32.842871°
Long – W 103.338300°
NMSPCE– N 671809.0
E 846937.4
(NAD-83)

FIRST TAKE POINT
100' FNL & 1420' FEL
Lat – N 32.842047°
Long – W 103.338298°
NMSPCE– N 671509.1
E 846940.9
(NAD-83)

LAST TAKE POINT
2525' FNL & 1420' FEL
Lat – N 32.820804°
Long – W 103.338397°
NMSPCE– N 663779.6
E 846983.3
(NAD-83)

BOTTOM HOLE LOCATION
Lat – N 32.820639°
Long – W 103.338396°
NMSPCE– N 663714.9
E 847004.1
(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 2/15/22
Signature Date

MIKE HANAGAN
Printed Name

mike@manzanoenergy.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 supervison, and that the same is true and correct to the best of my belief.

FEBRUARY 14, 2022
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate No. Gary L. Jones 7977
BASIN SURVEYS

0' 1500' 3000' 4500' 6000' N
SCALE: 1" = 3000'
WO Num.: 35578

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

Form APD Conditions

Permit 308617

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address:	API Number:
MANZANO LLC [231429] P.O. Box 1737 Roswell, NM 88202	30-025-49781
	Well: VINDICATOR CANYON STATE UNIT #152H

OCD Reviewer	Condition
pkautz	Notify OCD 24 hours prior to casing & cement
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system
pkautz	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud
pkautz	1) SURFACE & INTERMEDIATE CASING - Cement must circulate to surface -- 2) PRODUCTION CASING - Cement must tie back into intermediate casing --

RIG 11

Latshaw DRILLING™

Annular

13-5/8" 5,000#WP

Double Ram

13 5/8" 10,000#WP Pipe

13 5/8" 10,000#WP Blind

Single Ram

13 5/8" 10,000#WP Pipe

With required adaptors

Mud Cross 13 5/8" 10,000#WP

Wing Valve 4 1/16" 10,000#WP

HCR Valve 4 1/16" 10,000#WP

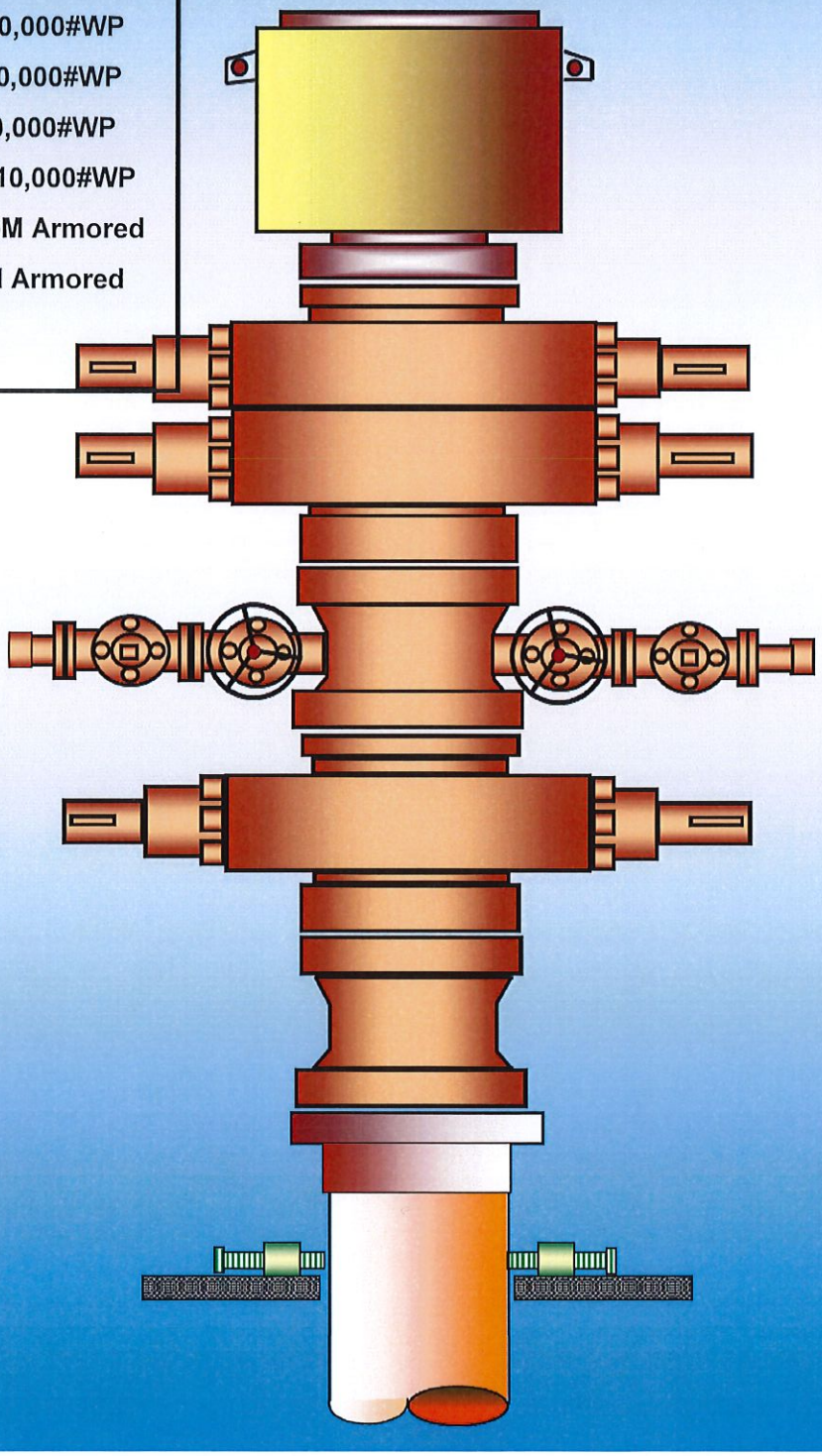
Choke Blk 4 1/16" 10,000#WP

Kill Valve 2 1/16" 10,000#WP

Check Valve 2 1/16" 10,000#WP

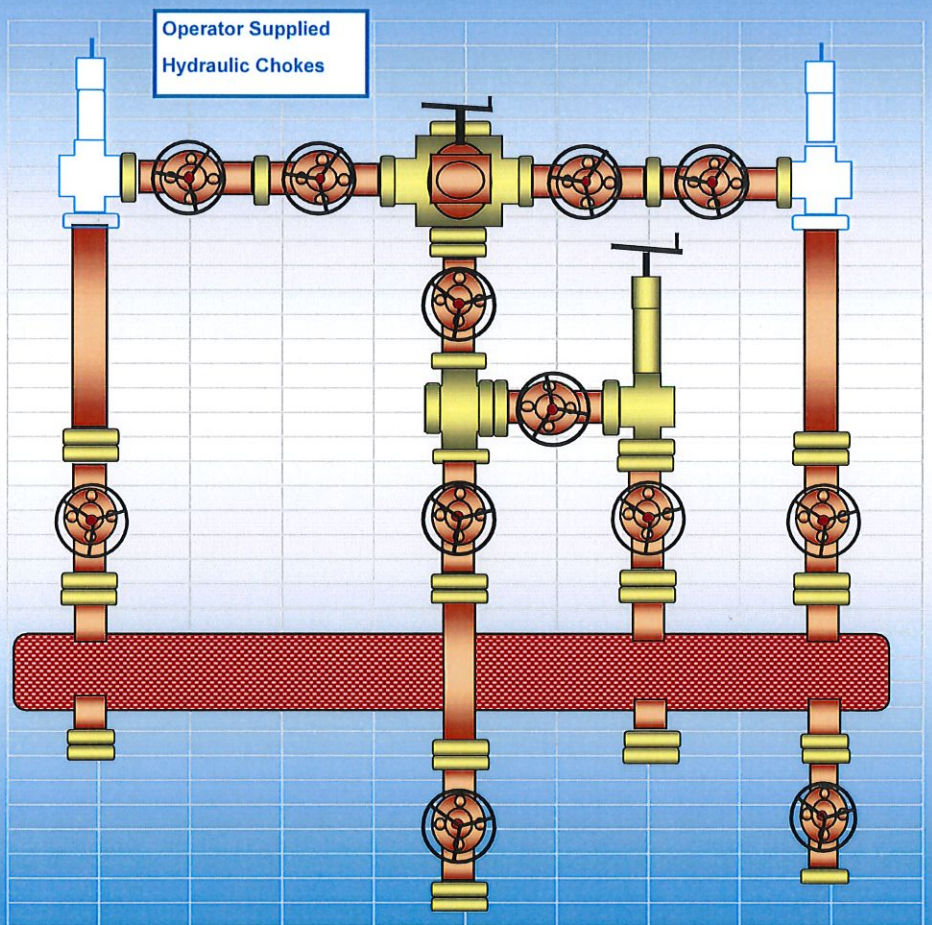
Choke Line 4 1/16" 10M Armored

Kill Line 2 1/16" 10M Armored



RIG 11

Latshaw DRILLING



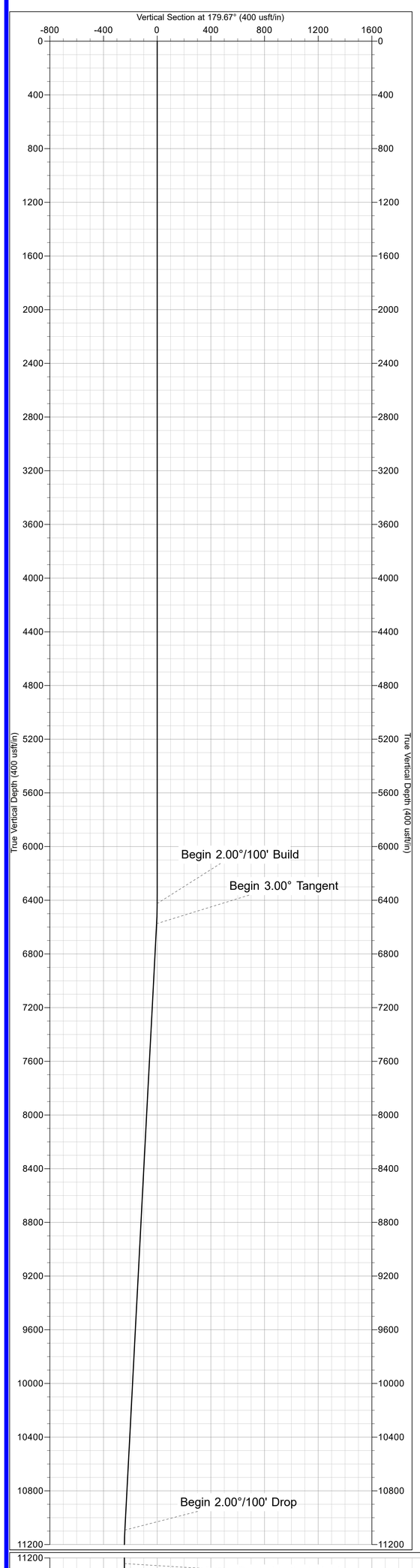
- 3 - Gate Valve 4 1/16" 10,000#WP
- 5 - Gate Valve 3 1/16" 10,000#WP
- 2 - Gate Valves 4 1/16" 5,000#WP
- 3 - Gate Valve 3 1/8" 5,000#WP
- 1- Gate Valve 2 1/16" 10,000#WP
- 1 - Manual Adjustable Choke 3 1/10" 10,000#WP
- 1 - DSA, 3 1/16" 10,000#WP
- 2 - Spacer Spool, 3 1/8" 5 000#WP
- 1 - Spool, flange adp 2 1/16" 10M
- 1 - Studded Cross (5way) 5,000#WP
- 1 - Tee Studded
- 1 - Instrument Flange and Gauge
- 10 3/4"" Buffer Chamber
- 3 - Blind Flanges, 4 1/16" & 3 1/8" 5M
- 3 - Flanges, 4 1/16" 5M & 10M

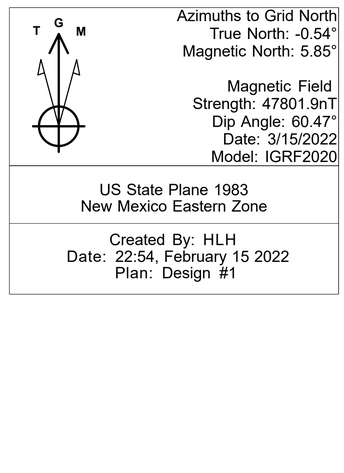
Company: Manzano
Site: Vindicator Canyon State Unit 152H
Well: Vindicator Canyon State Unit 152H
Project: Lea County, NM (NAD 83)
Rig: Latshaw 11 - 27'?

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
6425.00	0.00	0.00	6425.00	0.00	0.00	0.00	0.00	Begin 2.00°/100' Build
6574.85	3.00	0.12	6574.78	3.92	0.01	-3.92	3.92	Begin 3.00° Tangent
11098.78	3.00	0.12	11092.52	240.44	0.51	-240.44	240.44	Begin 2.00°/100' Drop
11248.62	0.00	0.00	11242.30	244.36	0.51	-244.35	244.36	Begin Vertical Hold
11448.63	0.00	0.00	11442.30	244.36	0.51	-244.35	244.36	KOP, Begin 10.00°/100' Build
12319.93	87.13	179.69	12014.54	-299.90	3.50	299.91	788.63	Begin 87.13° Lateral / FTP
15724.28	87.13	179.69	12185.00	-3699.93	22.15	3700.00	4188.72	Begin 2.00°/100' Build
15870.58	90.06	179.69	12188.59	-3846.16	22.95	3846.23	4334.95	Hold 90.06° Inc
17504.34	90.06	179.69	12187.00	-5479.91	31.91	5480.00	5968.72	Begin 2.00°/100' Build
17601.79	92.00	179.69	12185.25	-5577.33	32.45	5577.42	6066.14	Hold 92.00° Inc
20095.89	92.00	179.69	12098.00	-8069.87	46.12	8070.00	8558.72	PBHL

Grid North is 0.54° East of True North (Grid Convergence)
To convert a Magnetic Direction to a Grid Direction, Add 5.85°
To convert a Magnetic Direction to a True Direction, Add 6.39° East



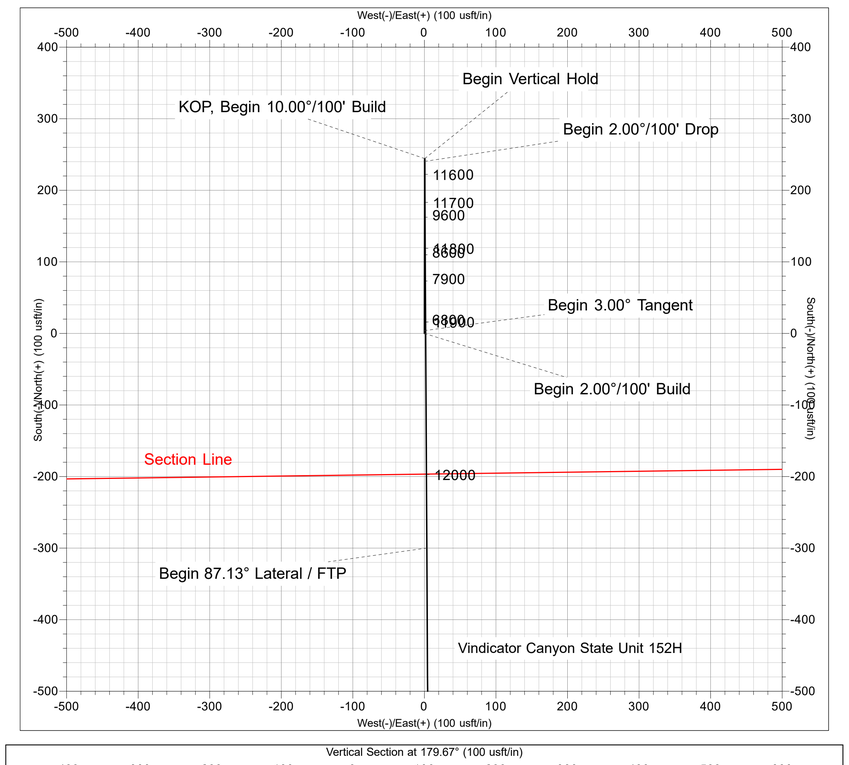


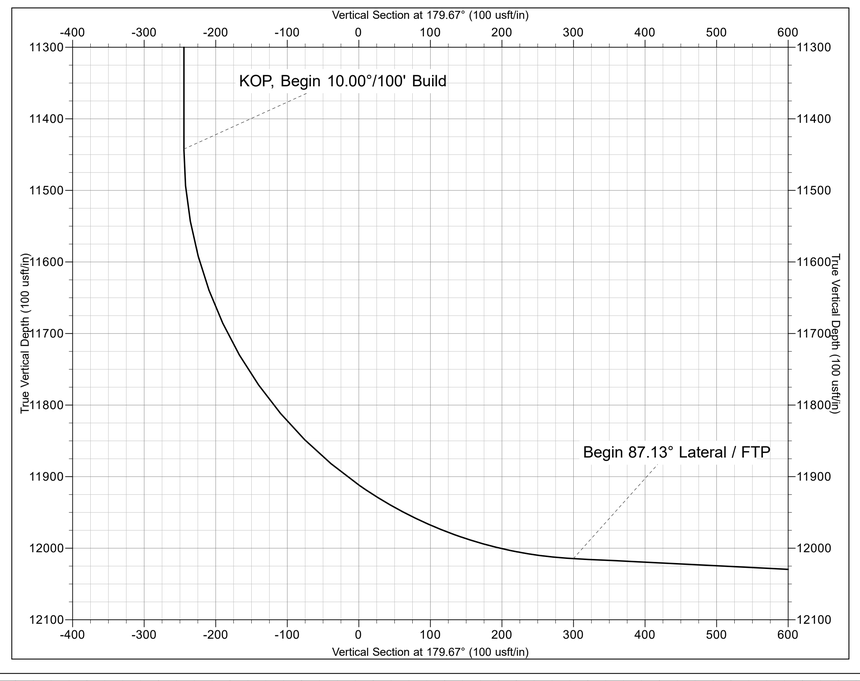
Azimuths to Grid North
True North: -0.54°
Magnetic North: 5.85°

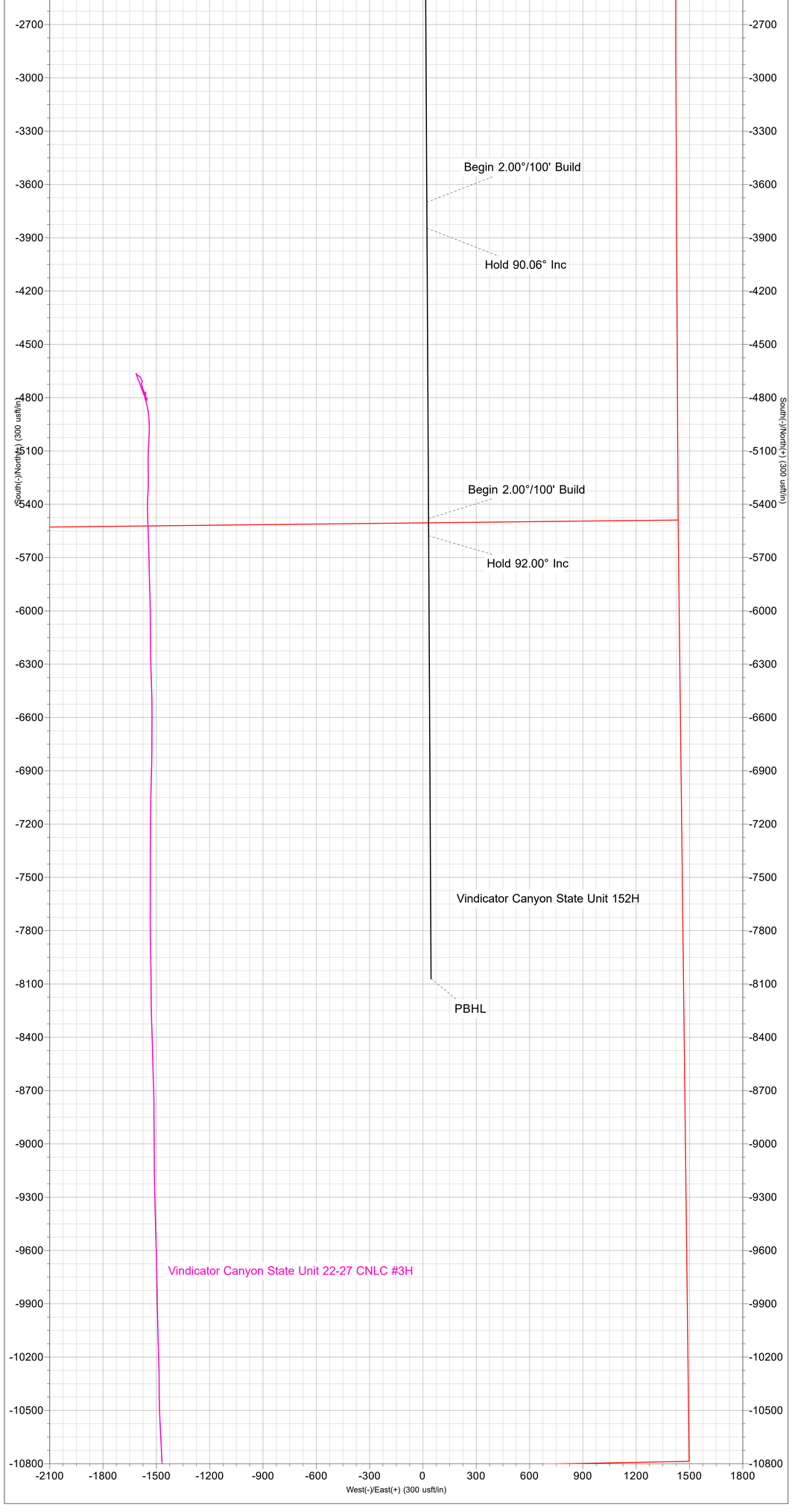
Magnetic Field
Strength: 47801.9nT
Dip Angle: 60.47°
Date: 3/15/2022
Model: IGRF2020

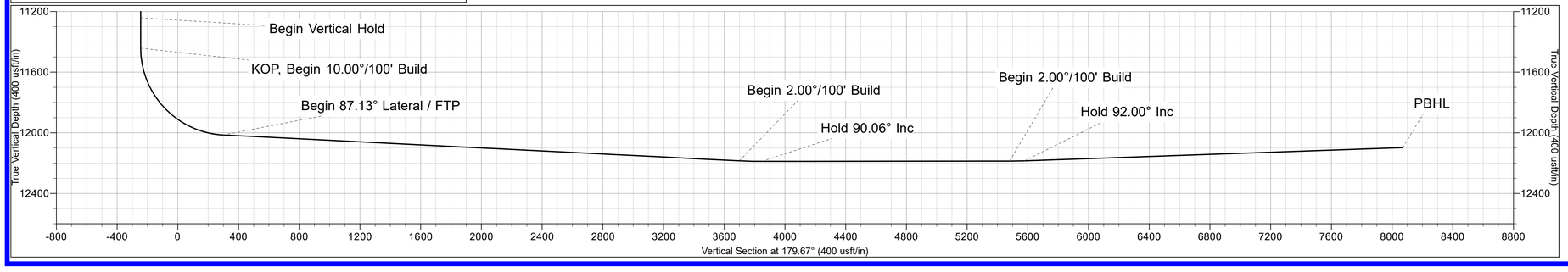
US State Plane 1983
New Mexico Eastern Zone

Created By: HLH
Date: 22:54, February 15 2022
Plan: Design #1









Manzano

Lea County, NM (NAD 83)
Vindicator Canyon State Unit 152H
Vindicator Canyon State Unit 152H

Wellbore #1

Plan: Design #1

Standard Planning Report

15 February, 2022

MANZANO ENERGY PARTNERS

Stryker Directional
Planning Report

STRYKER DIRECTIONAL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Vindicator Canyon State Unit 152H
Company:	Manzano	**TVD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Site:	Vindicator Canyon State Unit 152H	**North Reference:**	Grid
Well:	Vindicator Canyon State Unit 152H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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 152H

Site Position:		**Northing:**	671,809.0000 usft	**Latitude:**	32° 50' 34.337 N
From:	Map	**Easting:**	846,937.4000 usft	**Longitude:**	103° 20' 17.879 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.54 °

Well Vindicator Canyon State Unit 152H

Well Position	**+N/-S**	0.00 usft	**Northing:**	671,809.0000 usft	**Latitude:**	32° 50' 34.337 N
	+E/-W	0.00 usft	**Easting:**	846,937.4000 usft	**Longitude:**	103° 20' 17.879 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,848.00 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	3/15/2022	6.39	60.47	47,801.90777971

Design Design #1

Audit Notes:

Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.67

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,425.00	0.00	0.00	6,425.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,574.85	3.00	0.12	6,574.78	3.92	0.01	2.00	2.00	0.00	0.12	
11,098.78	3.00	0.12	11,092.52	240.44	0.51	0.00	0.00	0.00	0.00	
11,248.62	0.00	0.00	11,242.30	244.36	0.51	2.00	-2.00	0.00	180.00	VP - VCSU 152H
11,448.63	0.00	0.00	11,442.31	244.36	0.51	0.00	0.00	0.00	0.00	
12,319.93	87.13	179.69	12,014.54	-299.90	3.50	10.00	10.00	0.00	179.69	
15,724.28	87.13	179.69	12,185.00	-3,699.93	22.15	0.00	0.00	0.00	0.00	T1 - VCSU 152H
15,870.58	90.06	179.69	12,188.59	-3,846.16	22.95	2.00	2.00	0.00	0.00	
17,504.35	90.06	179.69	12,187.00	-5,479.91	31.91	0.00	0.00	0.00	0.00	T2 - VCSU 152H
17,601.79	92.00	179.69	12,185.25	-5,577.33	32.45	2.00	2.00	0.00	0.00	
20,095.89	92.00	179.69	12,098.00	-8,069.87	46.12	0.00	0.00	0.00	0.00	PBHL - VCSU 152H

MANZANO ENERGY PARTNERS

Stryker Directional
Planning Report

STRYKER DIRECTIONAL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Vindicator Canyon State Unit 152H
Company:	Manzano	**TVD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Site:	Vindicator Canyon State Unit 152H	**North Reference:**	Grid
Well:	Vindicator Canyon State Unit 152H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

MANZANO ENERGY PARTNERS

Stryker Directional
Planning Report

STRYKER DIRECTIONAL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Vindicator Canyon State Unit 152H
Company:	Manzano	**TVD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Site:	Vindicator Canyon State Unit 152H	**North Reference:**	Grid
Well:	Vindicator Canyon State Unit 152H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,425.00	0.00	0.00	6,425.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin 2.00°/100' Build									
6,500.00	1.50	0.12	6,499.99	0.98	0.00	-0.98	2.00	2.00	0.00
6,574.85	3.00	0.12	6,574.78	3.92	0.01	-3.92	2.00	2.00	0.00
Begin 3.00° Tangent									
6,600.00	3.00	0.12	6,599.90	5.23	0.01	-5.23	0.00	0.00	0.00
6,700.00	3.00	0.12	6,699.76	10.46	0.02	-10.46	0.00	0.00	0.00
6,800.00	3.00	0.12	6,799.62	15.69	0.03	-15.69	0.00	0.00	0.00
6,900.00	3.00	0.12	6,899.49	20.92	0.04	-20.92	0.00	0.00	0.00
7,000.00	3.00	0.12	6,999.35	26.15	0.06	-26.15	0.00	0.00	0.00
7,100.00	3.00	0.12	7,099.21	31.37	0.07	-31.37	0.00	0.00	0.00
7,200.00	3.00	0.12	7,199.08	36.60	0.08	-36.60	0.00	0.00	0.00
7,300.00	3.00	0.12	7,298.94	41.83	0.09	-41.83	0.00	0.00	0.00
7,400.00	3.00	0.12	7,398.80	47.06	0.10	-47.06	0.00	0.00	0.00
7,500.00	3.00	0.12	7,498.67	52.29	0.11	-52.29	0.00	0.00	0.00
7,600.00	3.00	0.12	7,598.53	57.52	0.12	-57.51	0.00	0.00	0.00
7,700.00	3.00	0.12	7,698.39	62.74	0.13	-62.74	0.00	0.00	0.00
7,800.00	3.00	0.12	7,798.26	67.97	0.14	-67.97	0.00	0.00	0.00
7,900.00	3.00	0.12	7,898.12	73.20	0.15	-73.20	0.00	0.00	0.00
8,000.00	3.00	0.12	7,997.98	78.43	0.17	-78.43	0.00	0.00	0.00
8,100.00	3.00	0.12	8,097.85	83.66	0.18	-83.66	0.00	0.00	0.00
8,200.00	3.00	0.12	8,197.71	88.89	0.19	-88.88	0.00	0.00	0.00
8,300.00	3.00	0.12	8,297.57	94.11	0.20	-94.11	0.00	0.00	0.00
8,400.00	3.00	0.12	8,397.44	99.34	0.21	-99.34	0.00	0.00	0.00
8,500.00	3.00	0.12	8,497.30	104.57	0.22	-104.57	0.00	0.00	0.00
8,600.00	3.00	0.12	8,597.16	109.80	0.23	-109.80	0.00	0.00	0.00
8,700.00	3.00	0.12	8,697.03	115.03	0.24	-115.02	0.00	0.00	0.00
8,800.00	3.00	0.12	8,796.89	120.26	0.25	-120.25	0.00	0.00	0.00
8,900.00	3.00	0.12	8,896.75	125.48	0.26	-125.48	0.00	0.00	0.00
9,000.00	3.00	0.12	8,996.61	130.71	0.28	-130.71	0.00	0.00	0.00
9,100.00	3.00	0.12	9,096.48	135.94	0.29	-135.94	0.00	0.00	0.00
9,200.00	3.00	0.12	9,196.34	141.17	0.30	-141.17	0.00	0.00	0.00
9,300.00	3.00	0.12	9,296.20	146.40	0.31	-146.39	0.00	0.00	0.00
9,400.00	3.00	0.12	9,396.07	151.63	0.32	-151.62	0.00	0.00	0.00
9,500.00	3.00	0.12	9,495.93	156.85	0.33	-156.85	0.00	0.00	0.00
9,600.00	3.00	0.12	9,595.79	162.08	0.34	-162.08	0.00	0.00	0.00
9,700.00	3.00	0.12	9,695.66	167.31	0.35	-167.31	0.00	0.00	0.00
9,800.00	3.00	0.12	9,795.52	172.54	0.36	-172.53	0.00	0.00	0.00
9,900.00	3.00	0.12	9,895.38	177.77	0.37	-177.76	0.00	0.00	0.00
10,000.00	3.00	0.12	9,995.25	183.00	0.39	-182.99	0.00	0.00	0.00
10,100.00	3.00	0.12	10,095.11	188.22	0.40	-188.22	0.00	0.00	0.00
10,200.00	3.00	0.12	10,194.97	193.45	0.41	-193.45	0.00	0.00	0.00

MANZANO ENERGY PARTNERS

Stryker Directional
Planning Report

STRYKER DIRECTIONAL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Vindicator Canyon State Unit 152H
Company:	Manzano	**TVD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Site:	Vindicator Canyon State Unit 152H	**North Reference:**	Grid
Well:	Vindicator Canyon State Unit 152H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
10,300.00	3.00	0.12	10,294.84	198.68	0.42	-198.68	0.00	0.00	0.00
10,400.00	3.00	0.12	10,394.70	203.91	0.43	-203.90	0.00	0.00	0.00
10,500.00	3.00	0.12	10,494.56	209.14	0.44	-209.13	0.00	0.00	0.00
10,600.00	3.00	0.12	10,594.43	214.37	0.45	-214.36	0.00	0.00	0.00
10,700.00	3.00	0.12	10,694.29	219.59	0.46	-219.59	0.00	0.00	0.00
10,800.00	3.00	0.12	10,794.15	224.82	0.47	-224.82	0.00	0.00	0.00
10,900.00	3.00	0.12	10,894.02	230.05	0.48	-230.04	0.00	0.00	0.00
11,000.00	3.00	0.12	10,993.88	235.28	0.50	-235.27	0.00	0.00	0.00
11,098.78	3.00	0.12	11,092.52	240.44	0.51	-240.44	0.00	0.00	0.00
Begin 2.00°/100' Drop									
11,100.00	2.97	0.12	11,093.74	240.51	0.51	-240.50	2.00	-2.00	0.00
11,200.00	0.97	0.12	11,193.68	243.95	0.51	-243.94	2.00	-2.00	0.00
11,248.62	0.00	0.00	11,242.30	244.36	0.51	-244.35	2.00	-2.00	0.00
Begin Vertical Hold									
11,300.00	0.00	0.00	11,293.68	244.36	0.51	-244.35	0.00	0.00	0.00
11,400.00	0.00	0.00	11,393.68	244.36	0.51	-244.35	0.00	0.00	0.00
11,448.63	0.00	0.00	11,442.31	244.36	0.51	-244.35	0.00	0.00	0.00
KOP, Begin 10.00°/100' Build									
11,450.00	0.14	179.69	11,443.68	244.36	0.51	-244.35	10.00	10.00	0.00
11,500.00	5.14	179.69	11,493.61	242.06	0.53	-242.05	10.00	10.00	0.00
11,550.00	10.14	179.69	11,543.15	235.42	0.56	-235.41	10.00	10.00	0.00
11,600.00	15.14	179.69	11,591.92	224.48	0.62	-224.48	10.00	10.00	0.00
11,650.00	20.14	179.69	11,639.56	209.34	0.71	-209.33	10.00	10.00	0.00
11,700.00	25.14	179.69	11,685.69	190.10	0.81	-190.09	10.00	10.00	0.00
11,750.00	30.14	179.69	11,729.97	166.91	0.94	-166.91	10.00	10.00	0.00
11,800.00	35.14	179.69	11,772.06	139.96	1.09	-139.95	10.00	10.00	0.00
11,850.00	40.14	179.69	11,811.64	109.43	1.25	-109.43	10.00	10.00	0.00
11,900.00	45.14	179.69	11,848.42	75.58	1.44	-75.57	10.00	10.00	0.00
11,950.00	50.14	179.69	11,882.10	38.65	1.64	-38.64	10.00	10.00	0.00
12,000.00	55.14	179.69	11,912.43	-1.08	1.86	1.09	10.00	10.00	0.00
12,050.00	60.14	179.69	11,939.19	-43.30	2.09	43.31	10.00	10.00	0.00
12,100.00	65.14	179.69	11,962.16	-87.69	2.34	87.70	10.00	10.00	0.00
12,150.00	70.14	179.69	11,981.18	-133.92	2.59	133.93	10.00	10.00	0.00
12,200.00	75.14	179.69	11,996.09	-181.62	2.85	181.64	10.00	10.00	0.00
12,250.00	80.14	179.69	12,006.79	-230.45	3.12	230.46	10.00	10.00	0.00
12,300.00	85.14	179.69	12,013.20	-280.02	3.39	280.03	10.00	10.00	0.00
12,319.93	87.13	179.69	12,014.54	-299.90	3.50	299.91	10.00	10.00	0.00
Begin 87.13° Lateral / FTP									
12,400.00	87.13	179.69	12,018.55	-379.87	3.94	379.89	0.00	0.00	0.00
12,500.00	87.13	179.69	12,023.56	-479.74	4.49	479.76	0.00	0.00	0.00
12,600.00	87.13	179.69	12,028.57	-579.62	5.03	579.63	0.00	0.00	0.00
12,700.00	87.13	179.69	12,033.57	-679.49	5.58	679.51	0.00	0.00	0.00
12,800.00	87.13	179.69	12,038.58	-779.36	6.13	779.38	0.00	0.00	0.00
12,900.00	87.13	179.69	12,043.59	-879.23	6.68	879.26	0.00	0.00	0.00
13,000.00	87.13	179.69	12,048.60	-979.11	7.23	979.13	0.00	0.00	0.00
13,100.00	87.13	179.69	12,053.60	-1,078.98	7.77	1,079.01	0.00	0.00	0.00
13,200.00	87.13	179.69	12,058.61	-1,178.85	8.32	1,178.88	0.00	0.00	0.00
13,300.00	87.13	179.69	12,063.62	-1,278.73	8.87	1,278.76	0.00	0.00	0.00
13,400.00	87.13	179.69	12,068.62	-1,378.60	9.42	1,378.63	0.00	0.00	0.00
13,500.00	87.13	179.69	12,073.63	-1,478.47	9.97	1,478.51	0.00	0.00	0.00
13,600.00	87.13	179.69	12,078.64	-1,578.35	10.51	1,578.38	0.00	0.00	0.00
13,700.00	87.13	179.69	12,083.64	-1,678.22	11.06	1,678.26	0.00	0.00	0.00
13,800.00	87.13	179.69	12,088.65	-1,778.09	11.61	1,778.13	0.00	0.00	0.00
13,900.00	87.13	179.69	12,093.66	-1,877.97	12.16	1,878.00	0.00	0.00	0.00

MANZANO ENERGY PARTNERS

Stryker Directional
Planning Report

STRYKER DIRECTIONAL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Vindicator Canyon State Unit 152H
Company:	Manzano	**TVD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Site:	Vindicator Canyon State Unit 152H	**North Reference:**	Grid
Well:	Vindicator Canyon State Unit 152H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
14,000.00	87.13	179.69	12,098.67	-1,977.84	12.70	1,977.88	0.00	0.00	0.00
14,100.00	87.13	179.69	12,103.67	-2,077.71	13.25	2,077.75	0.00	0.00	0.00
14,200.00	87.13	179.69	12,108.68	-2,177.58	13.80	2,177.63	0.00	0.00	0.00
14,300.00	87.13	179.69	12,113.69	-2,277.46	14.35	2,277.50	0.00	0.00	0.00
14,400.00	87.13	179.69	12,118.69	-2,377.33	14.90	2,377.38	0.00	0.00	0.00
14,500.00	87.13	179.69	12,123.70	-2,477.20	15.44	2,477.25	0.00	0.00	0.00
14,600.00	87.13	179.69	12,128.71	-2,577.08	15.99	2,577.13	0.00	0.00	0.00
14,700.00	87.13	179.69	12,133.71	-2,676.95	16.54	2,677.00	0.00	0.00	0.00
14,800.00	87.13	179.69	12,138.72	-2,776.82	17.09	2,776.88	0.00	0.00	0.00
14,900.00	87.13	179.69	12,143.73	-2,876.70	17.63	2,876.75	0.00	0.00	0.00
15,000.00	87.13	179.69	12,148.74	-2,976.57	18.18	2,976.62	0.00	0.00	0.00
15,100.00	87.13	179.69	12,153.74	-3,076.44	18.73	3,076.50	0.00	0.00	0.00
15,200.00	87.13	179.69	12,158.75	-3,176.32	19.28	3,176.37	0.00	0.00	0.00
15,300.00	87.13	179.69	12,163.76	-3,276.19	19.83	3,276.25	0.00	0.00	0.00
15,400.00	87.13	179.69	12,168.76	-3,376.06	20.37	3,376.12	0.00	0.00	0.00
15,500.00	87.13	179.69	12,173.77	-3,475.93	20.92	3,476.00	0.00	0.00	0.00
15,600.00	87.13	179.69	12,178.78	-3,575.81	21.47	3,575.87	0.00	0.00	0.00
15,700.00	87.13	179.69	12,183.78	-3,675.68	22.02	3,675.75	0.00	0.00	0.00
15,724.28	87.13	179.69	12,185.00	-3,699.93	22.15	3,700.00	0.00	0.00	0.00
Begin 2.00°/100' Build									
15,800.00	88.64	179.69	12,187.79	-3,775.60	22.57	3,775.66	2.00	2.00	0.00
15,870.58	90.06	179.69	12,188.59	-3,846.16	22.95	3,846.23	2.00	2.00	0.00
Hold 90.06° Inc									
15,900.00	90.06	179.69	12,188.56	-3,875.59	23.11	3,875.66	0.00	0.00	0.00
16,000.00	90.06	179.69	12,188.47	-3,975.59	23.66	3,975.66	0.00	0.00	0.00
16,100.00	90.06	179.69	12,188.37	-4,075.58	24.21	4,075.66	0.00	0.00	0.00
16,200.00	90.06	179.69	12,188.27	-4,175.58	24.76	4,175.66	0.00	0.00	0.00
16,300.00	90.06	179.69	12,188.17	-4,275.58	25.31	4,275.66	0.00	0.00	0.00
16,400.00	90.06	179.69	12,188.08	-4,375.58	25.86	4,375.66	0.00	0.00	0.00
16,500.00	90.06	179.69	12,187.98	-4,475.58	26.41	4,475.66	0.00	0.00	0.00
16,600.00	90.06	179.69	12,187.88	-4,575.58	26.95	4,575.66	0.00	0.00	0.00
16,700.00	90.06	179.69	12,187.78	-4,675.57	27.50	4,675.66	0.00	0.00	0.00
16,800.00	90.06	179.69	12,187.69	-4,775.57	28.05	4,775.66	0.00	0.00	0.00
16,900.00	90.06	179.69	12,187.59	-4,875.57	28.60	4,875.66	0.00	0.00	0.00
17,000.00	90.06	179.69	12,187.49	-4,975.57	29.15	4,975.66	0.00	0.00	0.00
17,100.00	90.06	179.69	12,187.39	-5,075.57	29.70	5,075.66	0.00	0.00	0.00
17,200.00	90.06	179.69	12,187.30	-5,175.57	30.25	5,175.66	0.00	0.00	0.00
17,300.00	90.06	179.69	12,187.20	-5,275.57	30.79	5,275.66	0.00	0.00	0.00
17,400.00	90.06	179.69	12,187.10	-5,375.56	31.34	5,375.66	0.00	0.00	0.00
17,504.35	90.06	179.69	12,187.00	-5,479.91	31.91	5,480.00	0.00	0.00	0.00
Begin 2.00°/100' Build									
17,601.79	92.00	179.69	12,185.25	-5,577.33	32.45	5,577.42	2.00	2.00	0.00
Hold 92.00° Inc									
17,700.00	92.00	179.69	12,181.81	-5,675.48	32.99	5,675.57	0.00	0.00	0.00
17,800.00	92.00	179.69	12,178.31	-5,775.42	33.54	5,775.51	0.00	0.00	0.00
17,900.00	92.00	179.69	12,174.82	-5,875.35	34.08	5,875.45	0.00	0.00	0.00
18,000.00	92.00	179.69	12,171.32	-5,975.29	34.63	5,975.39	0.00	0.00	0.00
18,100.00	92.00	179.69	12,167.82	-6,075.23	35.18	6,075.33	0.00	0.00	0.00
18,200.00	92.00	179.69	12,164.32	-6,175.17	35.73	6,175.27	0.00	0.00	0.00
18,300.00	92.00	179.69	12,160.82	-6,275.10	36.28	6,275.21	0.00	0.00	0.00
18,400.00	92.00	179.69	12,157.33	-6,375.04	36.83	6,375.15	0.00	0.00	0.00
18,500.00	92.00	179.69	12,153.83	-6,474.98	37.37	6,475.09	0.00	0.00	0.00
18,600.00	92.00	179.69	12,150.33	-6,574.91	37.92	6,575.02	0.00	0.00	0.00

MANZANO ENERGY PARTNERS

Stryker Directional
Planning Report

STRYKER DIRECTIONAL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Vindicator Canyon State Unit 152H
Company:	Manzano	**TVD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Site:	Vindicator Canyon State Unit 152H	**North Reference:**	Grid
Well:	Vindicator Canyon State Unit 152H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
18,700.00	92.00	179.69	12,146.83	-6,674.85	38.47	6,674.96	0.00	0.00	0.00
18,800.00	92.00	179.69	12,143.33	-6,774.79	39.02	6,774.90	0.00	0.00	0.00
18,900.00	92.00	179.69	12,139.83	-6,874.73	39.57	6,874.84	0.00	0.00	0.00
19,000.00	92.00	179.69	12,136.34	-6,974.66	40.11	6,974.78	0.00	0.00	0.00
19,100.00	92.00	179.69	12,132.84	-7,074.60	40.66	7,074.72	0.00	0.00	0.00
19,200.00	92.00	179.69	12,129.34	-7,174.54	41.21	7,174.66	0.00	0.00	0.00
19,300.00	92.00	179.69	12,125.84	-7,274.48	41.76	7,274.60	0.00	0.00	0.00
19,400.00	92.00	179.69	12,122.34	-7,374.41	42.31	7,374.53	0.00	0.00	0.00
19,500.00	92.00	179.69	12,118.85	-7,474.35	42.86	7,474.47	0.00	0.00	0.00
19,600.00	92.00	179.69	12,115.35	-7,574.29	43.40	7,574.41	0.00	0.00	0.00
19,700.00	92.00	179.69	12,111.85	-7,674.22	43.95	7,674.35	0.00	0.00	0.00
19,800.00	92.00	179.69	12,108.35	-7,774.16	44.50	7,774.29	0.00	0.00	0.00
19,900.00	92.00	179.69	12,104.85	-7,874.10	45.05	7,874.23	0.00	0.00	0.00
20,000.00	92.00	179.69	12,101.35	-7,974.04	45.60	7,974.17	0.00	0.00	0.00
20,095.89	92.00	179.69	12,098.00	-8,069.87	46.12	8,070.00	0.00	0.00	0.00
PBHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
VP - VCSU 152H - plan hits target center - Point	0.00	0.00	11,242.30	244.36	0.51	672,053.3618	846,937.9145	32° 50' 36.755 N	103° 20' 17.846 W
PBHL - VCSU 152H - plan hits target center - Point	0.00	0.00	12,098.00	-8,069.87	46.12	663,739.1318	846,983.5220	32° 49' 14.493 N	103° 20' 18.229 W
Platted PBHL - VCSU - plan misses target center by 31.79usft at 20095.89usft MD (12098.00 TVD, -8069.87 N, 46.12 E) - Point	0.00	0.00	12,098.00	-8,094.10	66.70	663,714.9000	847,004.1000	32° 49' 14.251 N	103° 20' 17.991 W
T1 - VCSU 152H - plan hits target center - Point	0.00	0.00	12,185.00	-3,699.93	22.15	668,109.0663	846,959.5508	32° 49' 57.730 N	103° 20' 18.028 W
T2 - VCSU 152H - plan hits target center - Point	0.00	0.00	12,187.00	-5,479.91	31.91	666,329.0929	846,969.3148	32° 49' 40.118 N	103° 20' 18.110 W

MANZANO ENERGY PARTNERS

Stryker Directional
Planning Report

STRYKER DIRECTIONAL

Database:	EDM5000	**Local Co-ordinate Reference:**	Well Vindicator Canyon State Unit 152H
Company:	Manzano	**TVD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3875.00usft (Latshaw 11 - 27'?)
Site:	Vindicator Canyon State Unit 152H	**North Reference:**	Grid
Well:	Vindicator Canyon State Unit 152H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,425.00	6,425.00	0.00	0.00	Begin 2.00°/100' Build
6,574.85	6,574.78	3.92	0.01	Begin 3.00° Tangent
11,098.78	11,092.52	240.44	0.51	Begin 2.00°/100' Drop
11,248.62	11,242.30	244.36	0.51	Begin Vertical Hold
11,448.63	11,442.31	244.36	0.51	KOP, Begin 10.00°/100' Build
12,319.93	12,014.54	-299.90	3.50	Begin 87.13° Lateral / FTP
15,724.28	12,185.00	-3,699.93	22.15	Begin 2.00°/100' Build
15,870.58	12,188.59	-3,846.16	22.95	Hold 90.06° Inc
17,504.35	12,187.00	-5,479.91	31.91	Begin 2.00°/100' Build
17,601.79	12,185.25	-5,577.33	32.45	Hold 92.00° Inc
20,095.89	12,098.00	-8,069.87	46.12	PBHL

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

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

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: MANZANO, LLC **OGRID:** 231429 **Date:** 2 /15 / 22

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
VINDICATOR CANYON	30-025-		200' FS &			
STATE UNIT #152H		O-10-17s-36e	1420' FE	1500	2000	500

3

IV. Central Delivery Point Name: Facility ID fAPP2123059687 [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
VINDICATOR CANYON						
STATE UNIT #152H		**3/1/22**	**3/27/22**	**5/2/22**	**5/15/22**	**5/20/22**

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan
EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☐ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:
Printed Name: Mike Hanagan
Title: MANAGER
E-mail Address: mike@manzanoenergy.com
Date: 2/15/22
Phone: 575-623-1996 ext 310

OIL CONSERVATION DIVISION **(Only applicable when submitted as a standalone form)**
Approved By:
Title:
Approval Date:
Conditions of Approval:

ATTACHMENT TO SECTION 1 OF THE NATURAL GAS MANAGEMENT PLAN FOR MANZANO, LLC VINDICATOR CANYON STATE UNIT #152H

Section VI. Separation Equipment

When the well is initially brought into the battery the production will go thru the "Test Separation Equipment" at the Central Battery and production from the well will first go into a 48" x 15' 500psi 2-Phase vertical Test Separator rated to handle 12500+ BFPD and 16+ MMCFGPD where the gas will be separated from the produced liquids with the residue gas then going into an identical 48" x 15' 500psi 2-phase vertical Test Gas Scrubber to remove any remaining liquids before then going into the gas sales line. The liquid that comes off of the initial 2-Phase vertical Test Separator will go into a 72" x 15' 500psi 3-phase horizontal Test Separator capable of handling 13,500 BFPD + 15 MMCF with the residue gas from this Test Separator going into the 48" x 15' 500psi 2-phase vertical Test Gas Scrubber to remove any remaining liquids before routing any remaining residue gas into the gas sales line. Additionally, there will be a choke on the wellhead which can be used to reduce flow into the separators should that be necessary.

Once the well has been on production for a 2-3 month test period, the well will be rotated into the "Production Separation Equipment" at the Central Battery Separation Equipment where the produced fluids from this and other Vindicator Canyon State Unit wells will first go into a 36" x 10' 500psi 2-phase vertical Production Separator that is rated to handle 4500 BFPD + 6.25 MMCFGPD where the gas will be separated from the produced liquids with the residue gas then going into a 30" x 10' 125psi 2-phase vertical Production Gas Scrubber that is rated to handle 3050 BFPD + 4.5 MMCFGPD which will remove any remaining liquids before then going into the gas sales line. The liquid that comes off of the initial 36" x 10' 125psi 2-Phase vertical Production Separator will go into a 48" x 15' 125psi 3-phase horizontal Production Separator capable of handling 6,500 BFPD + 14 MMCFGPD with the residue gas from this Production Separator going into the 30" x 10' 500psi 2-phase vertical Production Gas Scrubber to remove any remaining liquids before routing the remaining residue gas into the gas sales line. Any remaining fluid from the 48" x 15' 125psi 3-phase horizontal Production Separator will then be routed into a 8' x 20' 125# Heater Treater rated to handle 1500 BFPD + 6 MMCFGPD with the residue gas from the Heater Treater going into the 30" x 10' 500psi 2-phase vertical Production Gas Scrubber to remove any remaining liquids before routing the remaining residue gas into the gas sales line. After the well has been sent into the Production Separation Equipment, the production will be commingled with production from other wells in the Vindicator Canyon State Unit and the well will be periodically rotated into the Test Separation Equipment to measure production rates for individual wells.

We anticipate peak production for this well to be around 1500 BFPD + 2.0 MMCF which should be easily managed by the Separation Equipment described above which we have already installed for this well.

Section VII. Operational Practices as per 19.15.27.8 NMAC Subsections A through F

Subsection A: Manzano will maximize the recovery of natural gas and minimize the waste of natural gas by properly sizing and maintaining tanks, vessels and related equipment including thief hatches, enardo valves, flares and vapor recovery equipment. In all circumstances, Manzano shall flare rather than vent natural gas except when flaring is technically infeasible or when flaring would a risk to safe operations or personal safety.

Subsection B - Venting and flaring during drilling operations: Manzano will capture natural gas coming from the wellbore during drilling operations by routing any gas laden fluids through a mud gas separator with the gas then being routed to a flare stack located at least 100' from the wellbore. In addition, Manzano will be drilling the well with fluid sufficiently weighted to minimize the entry of natural gas into the wellbore. Any gas that is flared during the drilling operations will be reported pursuant to Paragraph (1) of Subsection G of 19.15.27.8 NMAC.

Subsection C - Venting and flaring during completion operations: After fracing, sand and the frac plugs will be cleaned out of the wellbore under controlled conditions (circulating 1 barrel in per 1 barrel out) that will reduce or eliminate the flow of gas to the atmosphere. After cleaning the well out, a packer with a rupture disk will be set by wireline and tubing with gas lift valves will be installed. The rupture disc will then be burst and flowback will commence.

During the initial flowback after the frac job the fluids will go directly into storage tanks until there is sufficient pressure to function a separator at which point the fluids will go into a separator that will remove the gas from the fluid and send the metered gas to an on-site flare stack until it is feasible to route the gas to the Central Battery.

As soon as it is practical, the produced fluids will be switched out of the flowback separator and into the flowline going to the Central Battery for separation and sale as soon as is feasible.

Any gas that is flared during the completion operations will be reported pursuant to Paragraph (1) of Subsection G of 19.15.27.8 NMAC.

Once the well dies or if the well does not flow, gas lift operations will begin utilizing gas from other wells in the Unit and production will be sent through the Separation Equipment at the Central Battery as described above.

Subsection D - Venting and flaring during production operations: Manzano shall not vent or flare natural gas during production operations except as allowed in 19.15.27.8.1,2 &4 NMAC. Any gas that is flared during production operations will be reported pursuant to Paragraph (1) of Subsection G of 19.15.27.8 NMAC.

Subsection E - Performance standards: The production facilities that will be utilized by this well have been designed to handle in excess of the anticipated maximum throughput and are

rated for pressures greater than the anticipated pressures. In addition, the facilities have been designed to minimize waste of natural gas.

The production storage tanks are equipped with an automated tank gauging system that reduces the need to open thief hatches on the tanks or to be on the tanks.

Manzano has installed an anchored flare stack over 100' away from the wellbore and production tanks that has an automatic ignitor and continuous pilot that will combust any natural gas routed to the flare stack and is capable of handling 5 MMCFGPD. Any natural gas routed through the flare stack will be metered and will be reported pursuant to Paragraph (1) of Subsection G of 19.15.27.8 NMAC. Natural gas will not be vented except as allowed in 19.15.27.8.1,2 &4 NMAC.

Low bleed pilots in Pneumatic valves will be installed if necessary.

Manzano will utilize SCADA to monitor production and equipment as well as to shut in the wellbore in case of an emergency or other situation that could result in gas being released to the atmosphere.

Should the sales line pressure reach the desired maximum operating pressure, the SCADA system will close the Emergency Shut Down Valve on the wellhead and send an alarm to production personnel. In the event that the ESD valve failed to close, gas would be routed to the flare stack with a continuous pilot. Any flared gas would be metered until such time that personnel could be dispatched to resolve the problem or manually shut the well in.

Manzano shall conduct weekly AVO inspections consisting of visual inspections, listening for leaks and smelling for odors, to confirm that all production equipment is operating properly and that there are no leaks or releases of natural gas except as allowed in Subsection D of 19.15.27.8 NMAC. The AVO inspection shall include the inspection of all components to identify defects and leaks. Any leaks that are found shall be immediately repaired. Manzano shall keep record of an AVO inspection for at least 5 years and shall make such record available for inspection by the Division upon request.

Subsection F – Measurement or estimation of vented and flared natural gas: Manzano shall measure or estimate the volume of natural gas that it vents, flares or beneficially uses during drilling, completion and production operations.

Manzano has installed equipment to measure the volume of natural gas flared from the Separation Equipment described in Section VI above as well as the process piping and vapor recovery equipment. Metering equipment has also been installed to measure the volume of natural gas delivered to the custody transfer point into the DCP gas line.

If metering is not practical due to circumstances such as low flow rate or low-pressure venting or flaring, Manzano shall estimate the volume of vented or flared natural gas using a verifiable methodology.

VIII. Best Management Practices to minimize venting during active and planned maintenance:

Manzano has installed an automated Emergency Shut Down Valve on wellhead to close the well in the event of an abnormal low or high-pressure occurrence on the flowline or within the facility.

Swabbing operations, if necessary, will be performed through the Separation Equipment described in Section VI above in a closed system.

If tubing is to be pulled, the well will be killed and pulled in an overbalanced condition to increase the safety of personnel and reduce gas emissions.

Should a production vessel need to be worked on, the vessel will be bleed down into the system to as low a pressure as is practical and then the vessel will be isolated by valves at the vessel to minimize the volume of gas to be bled off the vessel with none from the associated piping.

Manzano shall verbally notify the division as soon as is possible for any venting or flaring event that exceed 500 MCF or otherwise qualifies as a major release and shall follow up the verbal notification with the filing of a form C-129. On venting or flaring events that are less than 500 MCF, Manzano shall notify the division in writing by filing a form C-129 within 15 days of the event.