

District I1625 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 370313

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

1. Operator Name and Address Avant Operating, LLC 1515 Wynkoop Street Denver, CO 80202		2. OGRID Number 330396
		3. API Number 30-015-55346
4. Property Code 335623	5. Property Name LITTLE BETTY 20	6. Well No. 502H

7. Surface Location

UL - Lot A	Section 20	Township 21S	Range 28E	Lot Idn	Feet From 1260	N/S Line N	Feet From 310	E/W Line E	County Eddy
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8. Proposed Bottom Hole Location

UL - Lot E	Section 20	Township 21S	Range 28E	Lot Idn E	Feet From 1430	N/S Line N	Feet From 100	E/W Line W	County Eddy
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9. Pool Information

FENTON;BONE SPRING	24300
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3221
16. Multiple N	17. Proposed Depth 13543	18. Formation 2nd Bone Spring Sand	19. Contractor	20. Spud Date 9/3/2024
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
Int1	17.5	13.375	54.5	1131	615	831
Surf	17.5	13.375	54.5	400	285	100
Int2	12.25	9.625	40	3100	660	2480
Prod	8.75	5.5	20	13543	2070	7696

Casing/Cement Program: Additional Comments

Top of lead cement 0' for all casing strings, top of tail cement estimated.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Pipe	10000	5000	CAMERON

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.		OIL CONSERVATION DIVISION	
Signature:			
Printed Name:	Electronically filed by Sarah Ferreyros	Approved By:	Ward Rikala
Title:	Director of Regulatory	Title:	Petroleum Specialist Supervisor
Email Address:	sarah@avantnr.com	Approved Date:	8/21/2024
Date:	8/19/2024	Phone:	720-854-9020
		Expiration Date: 8/21/2026	
		Conditions of Approval Attached	

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DISTRICT IV
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Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, N.M. 87505

Submit one copy to
Appropriate District Office

☐ AMENDED REPORT

17 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.

Signature

7/17/2024

Date

Meghan Twele

Printed Name

mtwele@outlook.com

E-mail Address

18 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.

9/17/23

7/17/2024

Date of Survey

Plat Revised: 8/25/24

Signature and Seal of Professional Surveyor:

JOHN VUKONICH
NEW MEXICO
14831
PROFESSIONAL SURVEYOR

Certificate Number

14831

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015-55346		2 Pool Code 24300		3 Pool Name FENTON;BONE SPRING	
4 Property Code 335623		5 Property Name LITTLE BETTY 20			6 Well Number 502H
7 OGRID No. 330396		8 Operator Name AVANT OPERATING, LLC			9 Elevation 3221

10 Surface Location

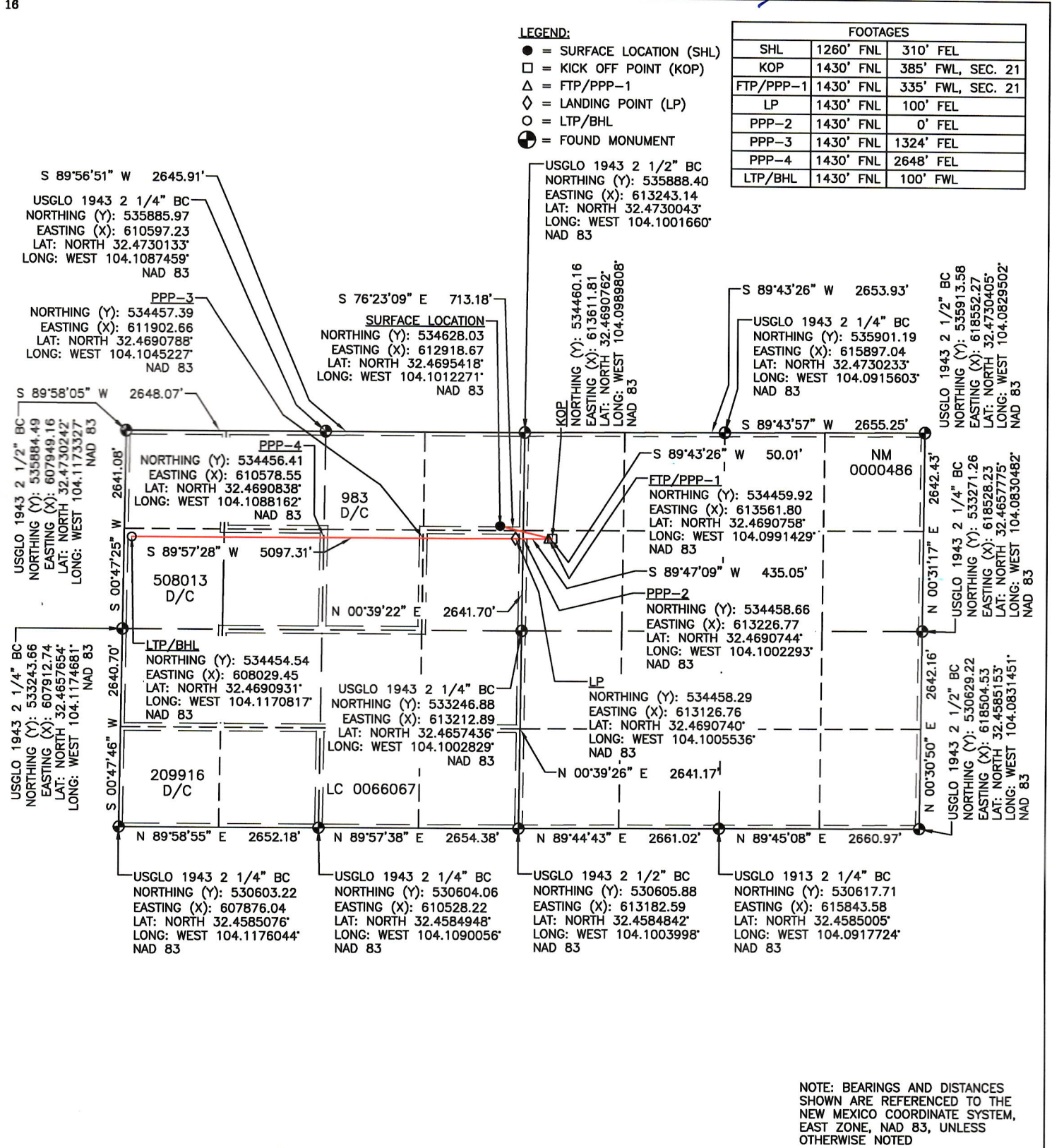
UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
A	20	21 S	28 E		1260	NORTH	310	EAST	EDDY

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
E	20	21 S	28 E		1430	NORTH	100	WEST	EDDY

12 Dedicated Acres 480 Total Acres.	13 Joint or Infill	14 Consolidation Code	15 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



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Form APD Comments
Permit 370313

PERMIT COMMENTS

Operator Name and Address: Avant Operating, LLC [330396] 1515 Wynkoop Street Denver, CO 80202		API Number: 30-015-55346
		Well: LITTLE BETTY 20 #502H

Created By	Comment	Comment Date
ward.rikala	This well is with in the 4 string casing area thus the casing design needs to be changed to protect the Capitan Reef Aquifer.	8/14/2024
twelem	Revised FTP/KOP and added 4-string casing design to protect Capitan Reef.	8/18/2024
jwrinkle	Fee Cancellation - repayment not received	8/19/2024
twelem	Updated casing depths and deepest formation	8/19/2024

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Form APD Conditions
Permit 370313

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: Avant Operating, LLC [330396] 1515 Wynkoop Street Denver, CO 80202	API Number: 30-015-55346
	Well: LITTLE BETTY 20 #502H

OCD Reviewer	Condition
ward.rikala	Notify OCD 24 hours prior to casing & cement
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104
ward.rikala	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
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing
ward.rikala	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
ward.rikala	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud

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: Avant Operating, LLC **OGRID:** 330396 **Date:** 03/15/2024

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.

[illegible]

IV. Central Delivery Point Name: Little Betty CTB [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
Little Betty 20 301H		05/02/2024	05/31/2024	07/06/2024	07/29/2024	07/29/2024
Little Betty 20 501H		05/02/2024	05/31/2024	07/06/2024	07/29/2024	07/29/2024
Little Betty 20 502H		05/02/2024	05/31/2024	07/06/2024	07/29/2024	07/29/2024
Little Betty 20 651H		05/02/2024	05/31/2024	07/06/2024	07/29/2024	07/29/2024
Little Betty 20 652H		05/02/2024	05/31/2024	07/06/2024	07/29/2024	07/29/2024
Little Betty 20 701H		05/02/2024	05/31/2024	07/06/2024	07/29/2024	07/29/2024
Little Betty 20 702H		05/02/2024	05/31/2024	07/06/2024	07/29/2024	07/29/2024

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
[REDACTED]			

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
[REDACTED]				

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

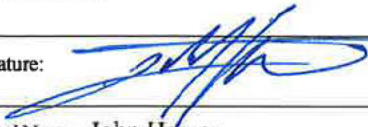
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(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: John Harper

Title: VP of Geosciences

E-mail Address: John@avantnr.com

Date: 03/15/24

Phone: 678-988-6644

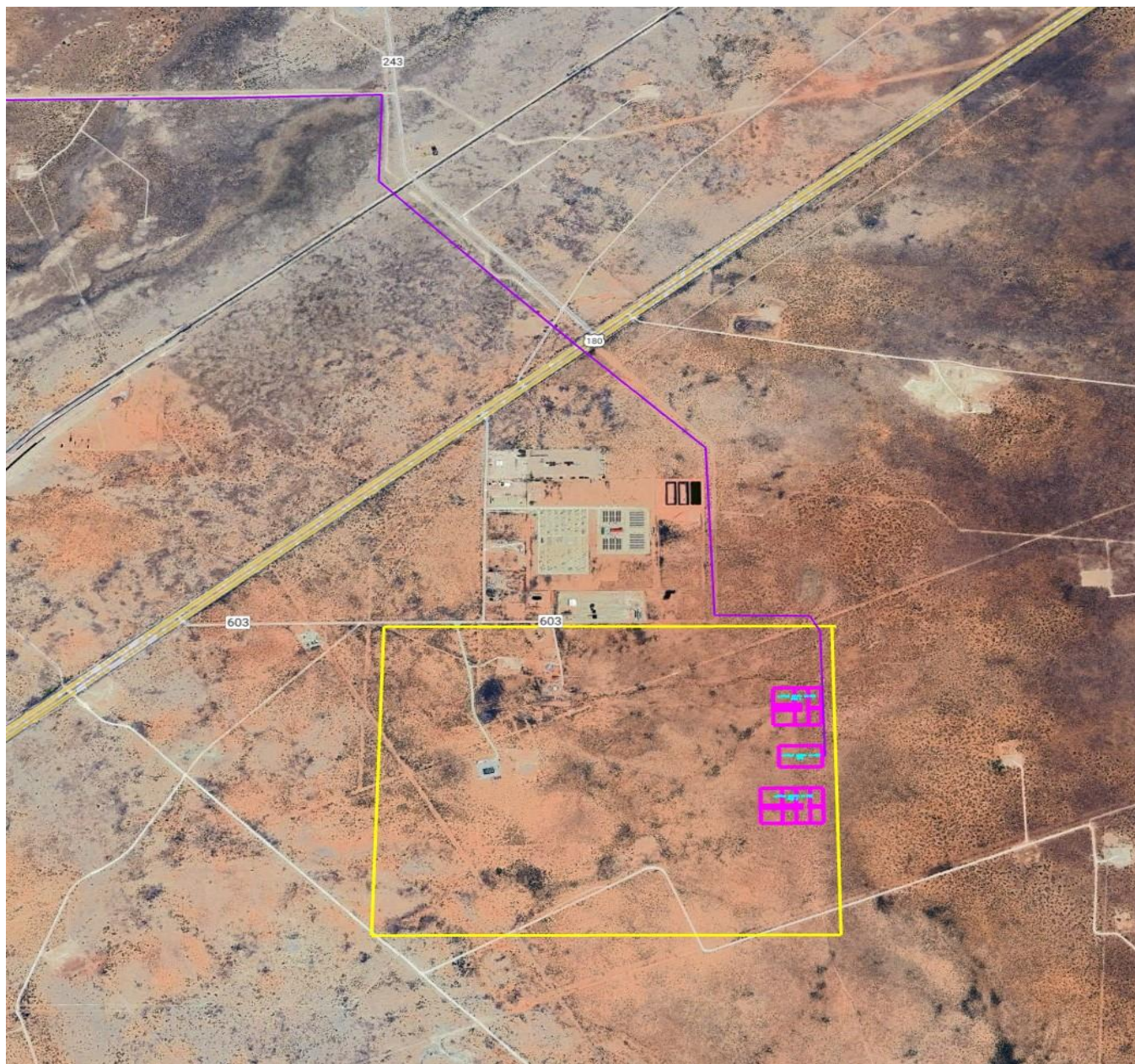
OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

Approved By:

Title:

Approval Date:

Conditions of Approval:

Map**Line Pressure Plan**

When we start to see an increase in line pressure, we will communicate with our current Gas Midstream company to see how we can reduce the line pressure to ensure they can handle the production. We will monitor closely and make facility adjustments to keep line pressures down. If we continue to see downstream issues with high line pressures, we will look at alternative options to capture the excess gas the pipeline cannot handle to keep line pressures low. Building a relationship with the Gas Midstream company will be a priority to ensure both parties are on the same page when new wells are coming online in order to keep line pressures low for any upgrades that need to be in place before they come online.

Avant Operating, LLC Natural Gas Management Plan

- VI. Separation equipment will be sized by construction engineering staff based on stated manufacturer daily throughput capacities and anticipated daily production rates to ensure adequate capacity. Closed vent system piping, compression needs, and VRUs will be sized utilizing ProMax modelling software to ensure adequate capacity for anticipated production volumes and conditions.
- VII. Avant Operating, LLC (Avant) will take the following actions to comply with the regulations listed in 19.15.27.8:
- A. Avant will maximize the recovery of natural gas by minimizing the waste, as defined by 19.15.2 NMAC, of natural gas through venting and flaring. Avant will ensure that well(s) will be connected to a natural gas gathering system with sufficient capacity to transport natural gas.
 - B. All drilling operations will be equipped with a rig flare located at least 100' from the nearest surface hole. Rig flare will be utilized to combust any natural gas that is brought to surface during normal drilling operations. In the case of emergency venting or flaring the volumes will be estimated and reported appropriately.
 - C. During completion operations any natural gas brought to surface will be flared. Immediately following the finish of completion operations, all well flowback will be directed to permanent separation equipment. Produced natural gas from separation equipment will be sent to sales. It is not anticipated that gas will not meet pipeline standards. However, if natural gas does not meet gathering pipeline quality specifications, Avant will flare the natural gas for 60 days or until the natural gas meets the pipeline quality specifications. Avant will ensure that the flare is sized properly and is equipped with automatic igniter or continuous pilot. The gas sample will be analyzed twice per week and the gas will be routed into a gathering system as soon as pipeline specifications are met.
 - D. Avant will comply with the performance standards requirements and provisions listed in 19.15.27.8 (1) through (8). All equipment will be designed and sized to handle maximum anticipated pressures and throughputs to minimize the waste. Production storage tanks constructed after May 25, 2021, will be equipped with automatic gauging system. Flares constructed after May 25, 2021, will be equipped with automatic igniter or continuous pilot. Flares will be located at least 100' from the well and storage tanks unless otherwise approved by the division. Avant will conduct AVO inspections as described in 19.15.27.8 E (5) (a) with frequencies specified in 19.15.27.8 E (5) (b) and (c). All emergencies will be resolved as quickly and safely as feasible to minimize waste.
 - E. The volume of natural gas that is vented or flared as the result of malfunction or emergency during drilling and completions operations will be estimated. The volume of natural gas that is vented, flared, or beneficially used during production operations, will be measured, or estimated. Avant will install equipment to measure

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

WELL DETAILS: Little Betty 20 502H

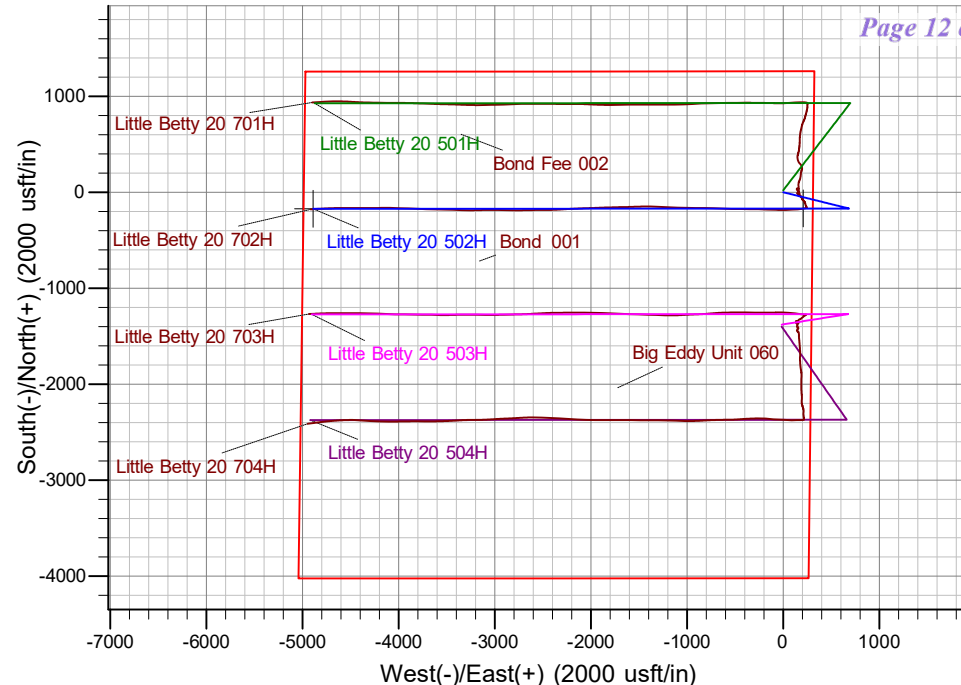
Ground Elev: 3221.0 KB: 3247.5

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	534628.03	612918.66	32.469542	-104.101227

PROJECT DETAILS: Eddy County, NM (NAD 83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

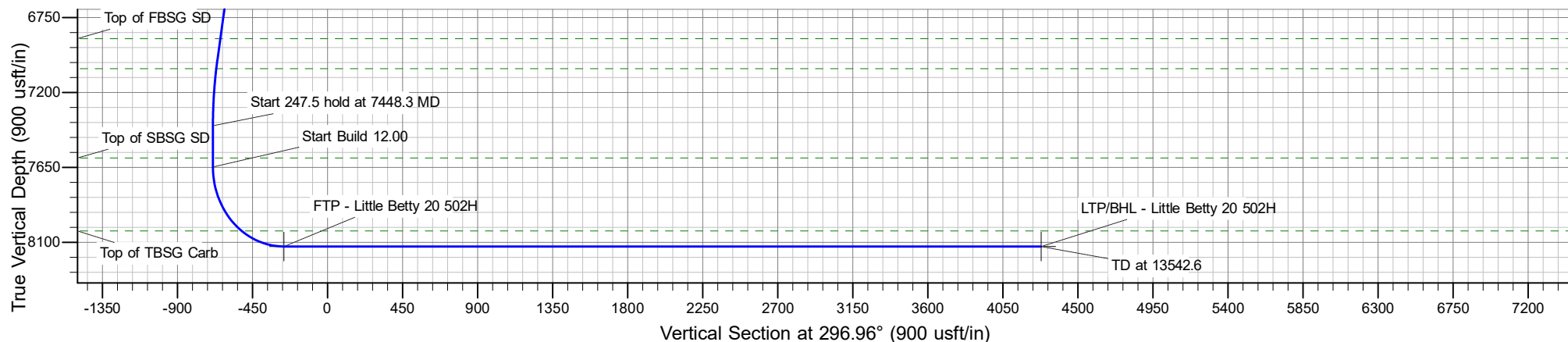
**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2401.9	8.04	103.94	2400.6	-6.8	27.3	2.00	103.94	-27.4	
4	7046.3	8.04	103.94	6999.4	-163.2	657.7	0.00	0.00	-660.2	
5	7448.3	0.00	0.00	7400.0	-170.0	685.0	2.00	180.00	-687.6	
6	7695.8	0.00	0.00	7647.5	-170.0	685.0	0.00	0.00	-687.6	
7	8445.8	90.00	269.96	8125.0	-170.3	207.5	12.00	269.96	-262.2	
8	13542.6	90.00	269.96	8125.0	-173.5	-4889.2	0.00	0.00	4279.2	



Azimuths to Grid North
 True North: -0.12°
 Magnetic North: 8.70°

Magnetic Field
 Strength: 49508.0nT
 Dip Angle: 60.57°
 Date: 12/31/2004
 Model: IGRF2000



Avant Operating, LLC

Eddy County, NM (NAD 83)

Little Betty 20 Pad 1

Little Betty 20 502H

OH

Plan: Plan 0.1 BD

Standard Planning Report

05 August, 2024

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Little Betty 20 502H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3247.5usft (3247.5)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 3247.5usft (3247.5)
Site:	Little Betty 20 Pad 1	North Reference:	Grid
Well:	Little Betty 20 502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1 BD		

Project	Eddy 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	Little Betty 20 Pad 1			
Site Position:		Northing:	534,648.28 usft	Latitude: 32.469597
From:	Lat/Long	Easting:	613,078.96 usft	Longitude: -104.100707
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	

Well	Little Betty 20 502H			
Well Position	+N/-S	0.0 usft	Northing:	534,628.03 usft
	+E/-W	0.0 usft	Easting:	612,918.67 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft
Grid Convergence:		0.12 °	Ground Level:	3,221.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	8.83	60.57	49,508.04245350

Design	Plan 0.1 BD			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	296.96

Plan Survey Tool Program	Date	8/5/2024		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	13,542.6 Plan 0.1 BD (OH)	B001Mb_MWD+HRGM	
			OWSG MWD + HRGM	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,401.9	8.04	103.94	2,400.6	-6.8	27.3	2.00	2.00	0.00	103.94	
7,046.3	8.04	103.94	6,999.4	-163.2	657.7	0.00	0.00	0.00	0.00	
7,448.3	0.00	0.00	7,400.0	-170.0	685.0	2.00	-2.00	0.00	180.00	
7,695.8	0.00	0.00	7,647.5	-170.0	685.0	0.00	0.00	0.00	0.00	
8,445.8	90.00	269.96	8,125.0	-170.3	207.5	12.00	12.00	0.00	269.96	
13,542.6	90.00	269.96	8,125.0	-173.5	-4,889.2	0.00	0.00	0.00	0.00	LTP/BHL - Little Betty

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Little Betty 20 502H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3247.5usft (3247.5)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 3247.5usft (3247.5)
Site:	Little Betty 20 Pad 1	North Reference:	Grid
Well:	Little Betty 20 502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1 BD		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,181.0	0.00	0.00	1,181.0	0.0	0.0	0.0	0.00	0.00	0.00
CAPITAN REEF									
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	2.00	103.94	2,100.0	-0.4	1.7	-1.7	2.00	2.00	0.00
2,200.0	4.00	103.94	2,199.8	-1.7	6.8	-6.8	2.00	2.00	0.00
2,300.0	6.00	103.94	2,299.5	-3.8	15.2	-15.3	2.00	2.00	0.00
2,400.0	8.00	103.94	2,398.7	-6.7	27.1	-27.2	2.00	2.00	0.00
2,401.9	8.04	103.94	2,400.6	-6.8	27.3	-27.4	2.00	2.00	0.00
2,500.0	8.04	103.94	2,497.7	-10.1	40.6	-40.8	0.00	0.00	0.00
2,600.0	8.04	103.94	2,596.7	-13.5	54.2	-54.4	0.00	0.00	0.00
2,700.0	8.04	103.94	2,695.8	-16.8	67.8	-68.0	0.00	0.00	0.00
2,800.0	8.04	103.94	2,794.8	-20.2	81.3	-81.7	0.00	0.00	0.00
2,900.0	8.04	103.94	2,893.8	-23.6	94.9	-95.3	0.00	0.00	0.00
3,000.0	8.04	103.94	2,992.8	-26.9	108.5	-108.9	0.00	0.00	0.00
3,000.2	8.04	103.94	2,993.0	-26.9	108.5	-108.9	0.00	0.00	0.00
CHERRY CANYON									
3,100.0	8.04	103.94	3,091.8	-30.3	122.1	-122.5	0.00	0.00	0.00
3,200.0	8.04	103.94	3,190.8	-33.7	135.6	-136.2	0.00	0.00	0.00
3,300.0	8.04	103.94	3,289.9	-37.0	149.2	-149.8	0.00	0.00	0.00
3,400.0	8.04	103.94	3,388.9	-40.4	162.8	-163.4	0.00	0.00	0.00
3,500.0	8.04	103.94	3,487.9	-43.8	176.4	-177.0	0.00	0.00	0.00
3,600.0	8.04	103.94	3,586.9	-47.1	189.9	-190.7	0.00	0.00	0.00
3,700.0	8.04	103.94	3,685.9	-50.5	203.5	-204.3	0.00	0.00	0.00
3,800.0	8.04	103.94	3,784.9	-53.9	217.1	-217.9	0.00	0.00	0.00
3,900.0	8.04	103.94	3,884.0	-57.2	230.6	-231.5	0.00	0.00	0.00
4,000.0	8.04	103.94	3,983.0	-60.6	244.2	-245.2	0.00	0.00	0.00
4,100.0	8.04	103.94	4,082.0	-64.0	257.8	-258.8	0.00	0.00	0.00
4,200.0	8.04	103.94	4,181.0	-67.3	271.4	-272.4	0.00	0.00	0.00
4,300.0	8.04	103.94	4,280.0	-70.7	284.9	-286.0	0.00	0.00	0.00
4,400.0	8.04	103.94	4,379.0	-74.1	298.5	-299.7	0.00	0.00	0.00
4,406.0	8.04	103.94	4,385.0	-74.3	299.3	-300.5	0.00	0.00	0.00
BRUSHY CANYON									
4,500.0	8.04	103.94	4,478.1	-77.5	312.1	-313.3	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Little Betty 20 502H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3247.5usft (3247.5)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 3247.5usft (3247.5)
Site:	Little Betty 20 Pad 1	North Reference:	Grid
Well:	Little Betty 20 502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1 BD		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,600.0	8.04	103.94	4,577.1	-80.8	325.7	-326.9	0.00	0.00	0.00
4,700.0	8.04	103.94	4,676.1	-84.2	339.2	-340.5	0.00	0.00	0.00
4,800.0	8.04	103.94	4,775.1	-87.6	352.8	-354.2	0.00	0.00	0.00
4,900.0	8.04	103.94	4,874.1	-90.9	366.4	-367.8	0.00	0.00	0.00
5,000.0	8.04	103.94	4,973.2	-94.3	379.9	-381.4	0.00	0.00	0.00
5,100.0	8.04	103.94	5,072.2	-97.7	393.5	-395.0	0.00	0.00	0.00
5,200.0	8.04	103.94	5,171.2	-101.0	407.1	-408.6	0.00	0.00	0.00
5,300.0	8.04	103.94	5,270.2	-104.4	420.7	-422.3	0.00	0.00	0.00
5,400.0	8.04	103.94	5,369.2	-107.8	434.2	-435.9	0.00	0.00	0.00
5,500.0	8.04	103.94	5,468.2	-111.1	447.8	-449.5	0.00	0.00	0.00
5,600.0	8.04	103.94	5,567.3	-114.5	461.4	-463.1	0.00	0.00	0.00
5,700.0	8.04	103.94	5,666.3	-117.9	474.9	-476.8	0.00	0.00	0.00
5,724.0	8.04	103.94	5,690.0	-118.7	478.2	-480.0	0.00	0.00	0.00
Top of BSG									
5,800.0	8.04	103.94	5,765.3	-121.2	488.5	-490.4	0.00	0.00	0.00
5,900.0	8.04	103.94	5,864.3	-124.6	502.1	-504.0	0.00	0.00	0.00
6,000.0	8.04	103.94	5,963.3	-128.0	515.7	-517.6	0.00	0.00	0.00
6,100.0	8.04	103.94	6,062.3	-131.3	529.2	-531.3	0.00	0.00	0.00
6,200.0	8.04	103.94	6,161.4	-134.7	542.8	-544.9	0.00	0.00	0.00
6,300.0	8.04	103.94	6,260.4	-138.1	556.4	-558.5	0.00	0.00	0.00
6,400.0	8.04	103.94	6,359.4	-141.4	570.0	-572.1	0.00	0.00	0.00
6,500.0	8.04	103.94	6,458.4	-144.8	583.5	-585.8	0.00	0.00	0.00
6,600.0	8.04	103.94	6,557.4	-148.2	597.1	-599.4	0.00	0.00	0.00
6,700.0	8.04	103.94	6,656.4	-151.6	610.7	-613.0	0.00	0.00	0.00
6,800.0	8.04	103.94	6,755.5	-154.9	624.2	-626.6	0.00	0.00	0.00
6,900.0	8.04	103.94	6,854.5	-158.3	637.8	-640.3	0.00	0.00	0.00
6,922.7	8.04	103.94	6,877.0	-159.1	640.9	-643.4	0.00	0.00	0.00
Top of FBSG SD									
7,000.0	8.04	103.94	6,953.5	-161.7	651.4	-653.9	0.00	0.00	0.00
7,046.3	8.04	103.94	6,999.4	-163.2	657.7	-660.2	0.00	0.00	0.00
7,100.0	6.97	103.94	7,052.6	-164.9	664.5	-667.0	2.00	-2.00	0.00
7,104.4	6.88	103.94	7,057.0	-165.0	665.0	-667.6	2.00	-2.00	0.00
Top of SBSG Shale									
7,200.0	4.97	103.94	7,152.0	-167.4	674.6	-677.2	2.00	-2.00	0.00
7,300.0	2.97	103.94	7,251.8	-169.1	681.3	-683.9	2.00	-2.00	0.00
7,400.0	0.97	103.94	7,351.7	-169.9	684.6	-687.2	2.00	-2.00	0.00
7,448.3	0.00	0.00	7,400.0	-170.0	685.0	-687.6	2.00	-2.00	0.00
7,500.0	0.00	0.00	7,451.7	-170.0	685.0	-687.6	0.00	0.00	0.00
7,600.0	0.00	0.00	7,551.7	-170.0	685.0	-687.6	0.00	0.00	0.00
7,641.3	0.00	0.00	7,593.0	-170.0	685.0	-687.6	0.00	0.00	0.00
Top of SBSG SD									
7,695.8	0.00	0.00	7,647.5	-170.0	685.0	-687.6	0.00	0.00	0.00
7,700.0	0.50	269.96	7,651.7	-170.0	685.0	-687.6	12.00	12.00	0.00
7,800.0	12.50	269.96	7,750.9	-170.0	673.7	-677.5	12.00	12.00	0.00
7,900.0	24.50	269.96	7,845.6	-170.0	642.0	-649.3	12.00	12.00	0.00
8,000.0	36.50	269.96	7,931.6	-170.1	591.3	-604.2	12.00	12.00	0.00
8,100.0	48.50	269.96	8,005.2	-170.1	523.9	-544.1	12.00	12.00	0.00
8,142.7	53.63	269.96	8,032.0	-170.1	490.7	-514.5	12.00	12.00	0.00
Top of TBSG Carb									
8,200.0	60.50	269.96	8,063.1	-170.2	442.6	-471.7	12.00	12.00	0.00
8,300.0	72.50	269.96	8,102.9	-170.2	351.1	-390.1	12.00	12.00	0.00
8,400.0	84.50	269.96	8,122.8	-170.3	253.3	-302.9	12.00	12.00	0.00
8,445.3	89.93	269.96	8,125.0	-170.3	208.1	-262.7	12.00	12.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Little Betty 20 502H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3247.5usft (3247.5)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 3247.5usft (3247.5)
Site:	Little Betty 20 Pad 1	North Reference:	Grid
Well:	Little Betty 20 502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1 BD		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
FTP - Little Betty 20 502H									
8,445.8	90.00	269.96	8,125.0	-170.3	207.5	-262.2	12.00	12.00	0.00
8,500.0	90.00	269.96	8,125.0	-170.3	153.3	-213.9	0.00	0.00	0.00
8,600.0	90.00	269.96	8,125.0	-170.4	53.3	-124.8	0.00	0.00	0.00
8,700.0	90.00	269.96	8,125.0	-170.5	-46.7	-35.7	0.00	0.00	0.00
8,800.0	90.00	269.96	8,125.0	-170.5	-146.7	53.4	0.00	0.00	0.00
8,900.0	90.00	269.96	8,125.0	-170.6	-246.7	142.5	0.00	0.00	0.00
9,000.0	90.00	269.96	8,125.0	-170.6	-346.7	231.6	0.00	0.00	0.00
9,100.0	90.00	269.96	8,125.0	-170.7	-446.7	320.7	0.00	0.00	0.00
9,200.0	90.00	269.96	8,125.0	-170.8	-546.7	409.8	0.00	0.00	0.00
9,300.0	90.00	269.96	8,125.0	-170.8	-646.7	498.9	0.00	0.00	0.00
9,400.0	90.00	269.96	8,125.0	-170.9	-746.7	588.0	0.00	0.00	0.00
9,500.0	90.00	269.96	8,125.0	-171.0	-846.7	677.1	0.00	0.00	0.00
9,600.0	90.00	269.96	8,125.0	-171.0	-946.7	766.2	0.00	0.00	0.00
9,700.0	90.00	269.96	8,125.0	-171.1	-1,046.7	855.3	0.00	0.00	0.00
9,800.0	90.00	269.96	8,125.0	-171.2	-1,146.7	944.4	0.00	0.00	0.00
9,900.0	90.00	269.96	8,125.0	-171.2	-1,246.7	1,033.6	0.00	0.00	0.00
10,000.0	90.00	269.96	8,125.0	-171.3	-1,346.7	1,122.7	0.00	0.00	0.00
10,100.0	90.00	269.96	8,125.0	-171.3	-1,446.7	1,211.8	0.00	0.00	0.00
10,200.0	90.00	269.96	8,125.0	-171.4	-1,546.7	1,300.9	0.00	0.00	0.00
10,300.0	90.00	269.96	8,125.0	-171.5	-1,646.7	1,390.0	0.00	0.00	0.00
10,400.0	90.00	269.96	8,125.0	-171.5	-1,746.7	1,479.1	0.00	0.00	0.00
10,500.0	90.00	269.96	8,125.0	-171.6	-1,846.7	1,568.2	0.00	0.00	0.00
10,600.0	90.00	269.96	8,125.0	-171.7	-1,946.7	1,657.3	0.00	0.00	0.00
10,700.0	90.00	269.96	8,125.0	-171.7	-2,046.7	1,746.4	0.00	0.00	0.00
10,800.0	90.00	269.96	8,125.0	-171.8	-2,146.7	1,835.5	0.00	0.00	0.00
10,900.0	90.00	269.96	8,125.0	-171.8	-2,246.7	1,924.6	0.00	0.00	0.00
11,000.0	90.00	269.96	8,125.0	-171.9	-2,346.7	2,013.7	0.00	0.00	0.00
11,100.0	90.00	269.96	8,125.0	-172.0	-2,446.7	2,102.8	0.00	0.00	0.00
11,200.0	90.00	269.96	8,125.0	-172.0	-2,546.7	2,191.9	0.00	0.00	0.00
11,300.0	90.00	269.96	8,125.0	-172.1	-2,646.7	2,281.0	0.00	0.00	0.00
11,400.0	90.00	269.96	8,125.0	-172.2	-2,746.7	2,370.1	0.00	0.00	0.00
11,500.0	90.00	269.96	8,125.0	-172.2	-2,846.7	2,459.2	0.00	0.00	0.00
11,600.0	90.00	269.96	8,125.0	-172.3	-2,946.7	2,548.3	0.00	0.00	0.00
11,700.0	90.00	269.96	8,125.0	-172.3	-3,046.7	2,637.4	0.00	0.00	0.00
11,800.0	90.00	269.96	8,125.0	-172.4	-3,146.7	2,726.5	0.00	0.00	0.00
11,900.0	90.00	269.96	8,125.0	-172.5	-3,246.7	2,815.6	0.00	0.00	0.00
12,000.0	90.00	269.96	8,125.0	-172.5	-3,346.7	2,904.7	0.00	0.00	0.00
12,100.0	90.00	269.96	8,125.0	-172.6	-3,446.7	2,993.8	0.00	0.00	0.00
12,200.0	90.00	269.96	8,125.0	-172.7	-3,546.7	3,082.9	0.00	0.00	0.00
12,300.0	90.00	269.96	8,125.0	-172.7	-3,646.7	3,172.0	0.00	0.00	0.00
12,400.0	90.00	269.96	8,125.0	-172.8	-3,746.7	3,261.1	0.00	0.00	0.00
12,500.0	90.00	269.96	8,125.0	-172.9	-3,846.7	3,350.3	0.00	0.00	0.00
12,600.0	90.00	269.96	8,125.0	-172.9	-3,946.7	3,439.4	0.00	0.00	0.00
12,700.0	90.00	269.96	8,125.0	-173.0	-4,046.7	3,528.5	0.00	0.00	0.00
12,800.0	90.00	269.96	8,125.0	-173.0	-4,146.7	3,617.6	0.00	0.00	0.00
12,900.0	90.00	269.96	8,125.0	-173.1	-4,246.7	3,706.7	0.00	0.00	0.00
13,000.0	90.00	269.96	8,125.0	-173.2	-4,346.7	3,795.8	0.00	0.00	0.00
13,100.0	90.00	269.96	8,125.0	-173.2	-4,446.7	3,884.9	0.00	0.00	0.00
13,200.0	90.00	269.96	8,125.0	-173.3	-4,546.7	3,974.0	0.00	0.00	0.00
13,300.0	90.00	269.96	8,125.0	-173.4	-4,646.7	4,063.1	0.00	0.00	0.00
13,400.0	90.00	269.96	8,125.0	-173.4	-4,746.7	4,152.2	0.00	0.00	0.00
13,500.0	90.00	269.96	8,125.0	-173.5	-4,846.7	4,241.3	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Little Betty 20 502H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3247.5usft (3247.5)
Project:	Eddy County, NM (NAD 83)	MD Reference:	WELL @ 3247.5usft (3247.5)
Site:	Little Betty 20 Pad 1	North Reference:	Grid
Well:	Little Betty 20 502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1 BD		

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)	
13,542.6	90.00	269.96	8,125.0	-173.5	-4,889.2	4,279.2	0.00	0.00	0.00	
LTP/BHL - Little Betty 20 502H										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
LTP/BHL - Little Betty 20	0.00	0.00	8,125.0	-173.5	-4,889.2	534,454.52	608,029.46	32.469093	-104.117082
- plan hits target center									
- Point									
FTP - Little Betty 20 502	0.00	0.01	8,125.0	-169.7	208.1	534,458.30	613,126.75	32.469074	-104.100554
- plan misses target center by 0.6usft at 8445.3usft MD (8125.0 TVD, -170.3 N, 208.1 E)									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
8,174.6	8,050.0	LP		5-1/2	6

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,181.0	1,181.0	CAPITAN REEF				
3,000.2	2,993.0	CHERRY CANYON				
4,406.0	4,385.0	BRUSHY CANYON				
5,724.0	5,690.0	Top of BSGL				
6,922.7	6,877.0	Top of FBSG SD				
7,104.4	7,057.0	Top of SBSG Shale				
7,641.3	7,593.0	Top of SBSG SD				
8,142.7	8,032.0	Top of TBSG Carb				

API:
REGULATORY: NMOCD
PERMIT #



AFE: NM0044

RIG: H&P 255
KB: 25.5
GL: 3222

Little Betty 20 State #502H

Bone Springs

Eddy County, NM

SHL:

Sec. 20, T-21S, R-28E; 1260 FNL, 310 FEL

Lat: 32.4695418, Long: -104.1012271 (NAD83)

HOLE SIZE	MD	FORMATION	TVD	MUD	CASING	CEMENT	SPECIAL INSTRUCTIONS
	120	30" Conductor	120	SPUD MW	20 "	Top of Lead: Surface 20% Excess	Circ cmt to surface is a regulatory requirement
24"				8.4 ppg	94# J-55 BTC	Top of Tail: 100' 20% Excess	Casing must be set 25' into the Rustler
	385	Rustler	385	FRESH			
	400	SURF CSG PT	400	TD MW +/- 5 Bowsprings			MUD: Fresh water only
				10.0 ppg	1 joint shoe track		
17.5"				DRLOUT MW	13 3/8 "	Top of Lead: Surface 20% OH Excess	Circ cmt to surface is a regulatory requirement
	1,025	Solado	1,025	10.0 ppg	54.5# J-55 BTC	Top of Tail: 831' 20% Excess	
				BRINE			
	1,131	INTRM1 CSG PT	1,131	TD MW +/- 10 Bowsprings			
				10.5 ppg	1 joint shoe track		
12.25"	1,181	Capitan Reef	1,181	DRILLOUT MW	9 5/8 "	Top of Lead: Surface 20% OH Excess	
				8.4 ppg	40# J-55 BTC	Top of Tail: 2480' 20% Excess	
				FRESH			
	3,000	Cherry Canyon	2,993	TD MW +/- 15 Bowsprings			
	3,100	INTRM2 CSG PT	3,093	8.4 ppg	1 joint shoe track		
VERT	4,406	Brushy Canyon	4,385	DRLOUT MW	5 1/2 "		
8.75"				9.2 ppg	20# P-110 HC GBCD		
	6,923	1st BS Sand	6,887	CUT BRINE			
				KOP MW			
				9.5 ppg			
CRV	7,641	2nd BS Sand	7,593	EOC MW			
8.75"	7,696	KOP	7,648	CUT BRINE 9.5 ppg	OBM	TD MW 9.5 ppg	13,543 MD
							4,889 VS
LAT	8,446	EOC	8,125				8,125 TVD
8.75"							BHL: 1430' FNL, 100' FWL
							Expected BH Pressure: 3803
				+/- 30 Singlebows 3,000 - 7,496	Top of Lead: Surface 20% OH Excess		
				+/- 27 Doublebows 7,496 - 8,646	Top of Tail: 7696' (KOP) 20% Excess		
				+/- 60.7 Solid bodies 8,646 - 13,543			

PRELIMINARY

Est. BHST = 146°, Est. BHCT = 129°

DIRECTIONS TO LOCAITON:

Ryan Harris (406) 853-6490

H&P 255

DATE: 8/16/2024