

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 297995

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

1. Operator Name and Address CENTENNIAL RESOURCE PRODUCTION, LLC 1001 17th Street, Suite 1800 Denver, CO 80202		2. OGRID Number 372165
		3. API Number 30-025-49157
4. Property Code 331179	5. Property Name GRAMA RIDGE 2 STATE COM	6. Well No. 502H

7. Surface Location

UL - Lot M	Section 2	Township 22S	Range 34E	Lot Idn M	Feet From 300	N/S Line S	Feet From 1275	E/W Line W	County Lea
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8. Proposed Bottom Hole Location

UL - Lot C	Section 2	Township 22S	Range 34E	Lot Idn 3	Feet From 100	N/S Line N	Feet From 2310	E/W Line W	County Lea
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9. Pool Information

OJO CHISO;BONE SPRING	96553
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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 3571
16. Multiple N	17. Proposed Depth 20548	18. Formation 2nd Bone Spring Sand	19. Contractor	20. Spud Date 7/15/2021
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	17.5	13.375	54.5	1850	1572	0
Int1	12.25	9.625	40	5600	1372	0
Prod	8.5	5.5	20	20548	2506	9789
Prod	8.75	5.5	20	10687	832	0

Casing/Cement Program: Additional Comments

Drilling 8.75 hole size for the curve and 8.5 hole size for the lateral for the 5.5 production casing string.

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: Paul F Kautz	
Title: Regulatory Lead	Title: Geologist	
Email Address: Sarah.Ferreyros@cdevinc.com	Approved Date: 7/8/2021	Expiration Date: 7/8/2023
Date: 7/6/2021	Phone: 720-499-1454	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
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-49157	² Pool Code 96553	³ Pool Name Ojo Chiso; Bone Spring
⁴ Property Code 331179	⁵ Property Name GRAMA RIDGE 2 STATE COM	⁶ Well Number 502H
⁷ OGRID No. 372165	⁸ Operator Name CENTENNIAL RESOURCE PRODUCTION, LLC	⁹ Elevation 3571.3'

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	2	22S	34E		300	SOUTH	1275	WEST	LEA

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
3	2	22S	34E		100	NORTH	2310	WEST	LEA
¹² Dedicated Acres 324.37	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

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.

¹⁶ NAD 83 (SURFACE HOLE LOCATION) LATITUDE = 32°24'51.48" (32.414299°) LONGITUDE = 103°26'42.32" (103.445088°) STATE PLANE NAD 83 (N.M. EAST) Y: 515592.36' X: 815442.31' UTM, NAD 83 (ZONE 13) Y: 11769736.38' X: 2120117.75' NAD 83 (PP/FTP) LATITUDE = 32°24'49.49" (32.413748°) LONGITUDE = 103°26'30.25" (103.441736°) STATE PLANE NAD 83 (N.M. EAST) Y: 515400.41' X: 816478.36' UTM, NAD 83 (ZONE 13) Y: 11769550.92' X: 2121154.84' NAD 83 (LTP/BHL) LATITUDE = 32°25'40.49" (32.427913°) LONGITUDE = 103°26'30.12" (103.441700°) STATE PLANE NAD 83 (N.M. EAST) Y: 520553.95' X: 816446.54' UTM, NAD 83 (ZONE 13) Y: 11774703.48' X: 2121090.87'	NOTE: - Distances referenced on plat to section lines are perpendicular. - Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83) ● = SURFACE HOLE LOCATION ◆ = PENETRATION POINT/ FIRST TAKE POINT ○ = LAST TAKE POINT/ BOTTOM HOLE LOCATION ▲ = SECTION CORNER LOCATED SCALE DRAWN BY: Z.T. 05-25-21 REV: 1 06-23-21 C.VIE (WELL NAME CHANGE)	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. Sarah Ferreyros Digitally signed by Sarah Ferreyros DN: cn=Sarah Ferreyros, c=US, o=Centennial Resource Development, ou=Property Development, email=Sarah.Ferreyros@cdevinc.com Date: 2021.07.06 14:34:06 -0700 Printed Name Sarah Ferreyros sarah.ferreyros@ cdevinc.com E-mail Address
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LINE TABLE

LINE	DIRECTION	LENGTH
L1	S79°15'45"E	1053.84'

**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.

May 24, 2021

Date of Survey
Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23782
06-23-21
PROFESSIONAL SURVEYOR

Certificate Number:

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

Form APD Comments

Permit 297995

PERMIT COMMENTS

Operator Name and Address: CENTENNIAL RESOURCE PRODUCTION, LLC [372165] 1001 17th Street, Suite 1800 Denver, CO 80202		API Number: 30-025-49157
		Well: GRAMA RIDGE 2 STATE COM #502H

Created By	Comment	Comment Date
sferreyros	Spudder rig will preset surface casing.	7/6/2021

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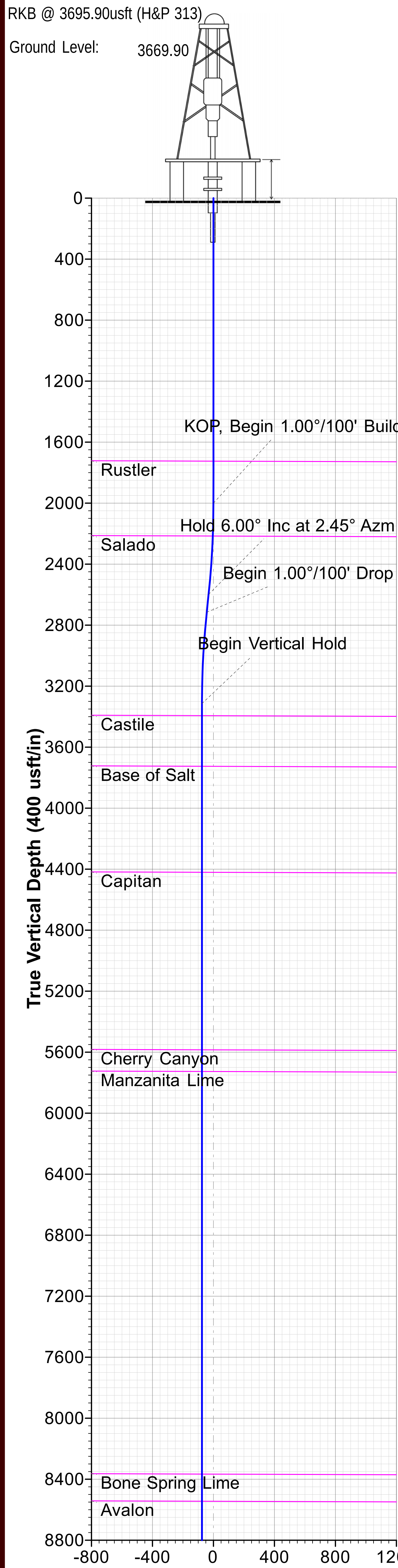
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Form APD Conditions
Permit 297995

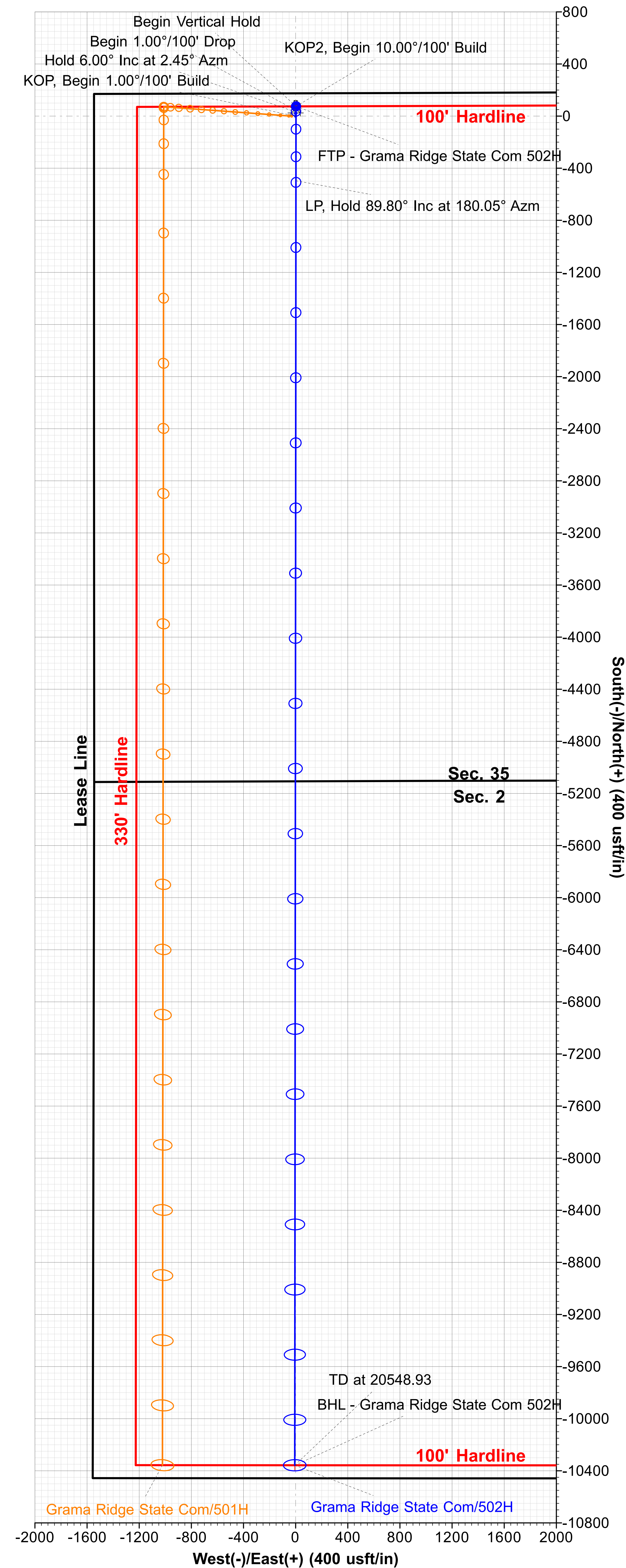
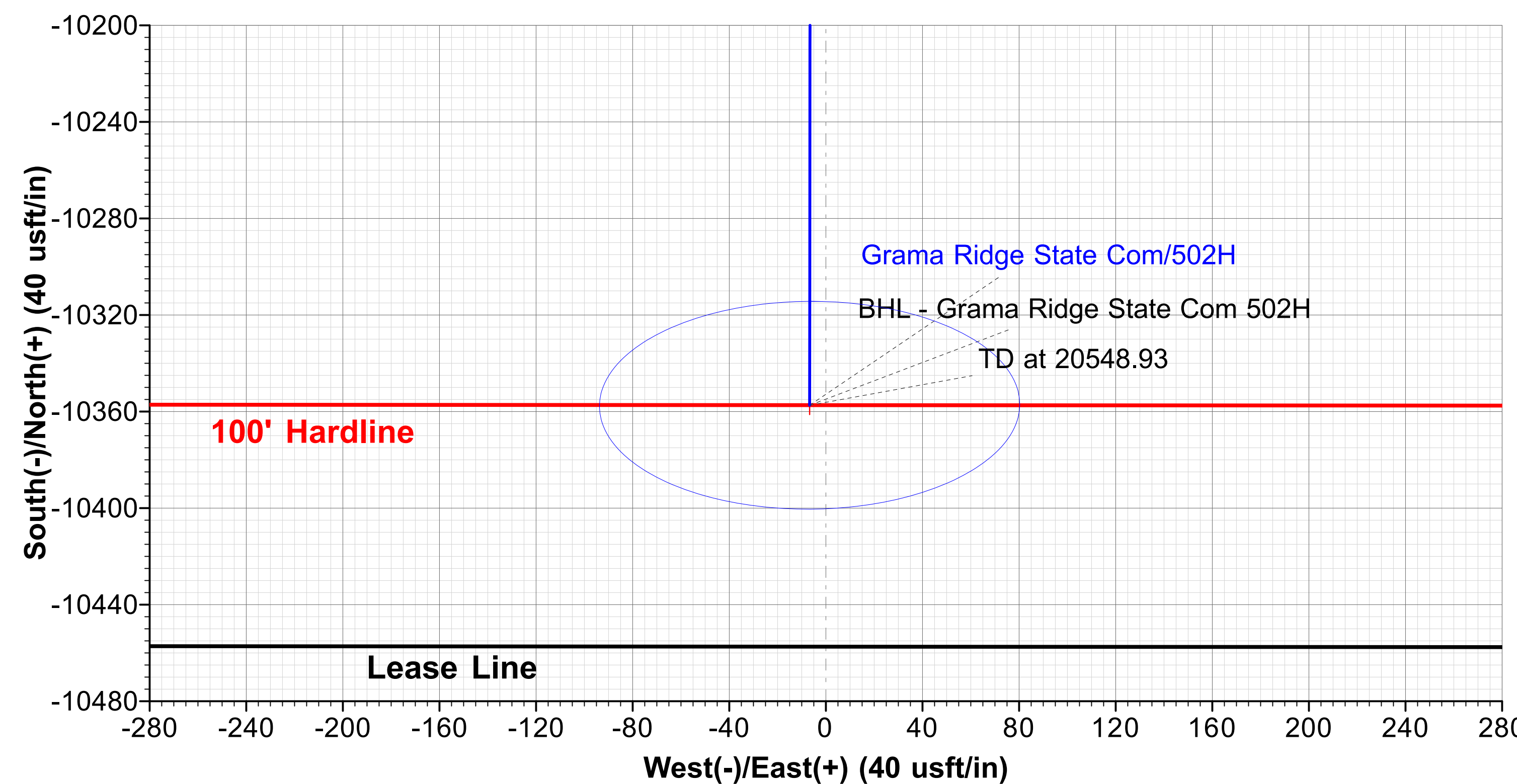
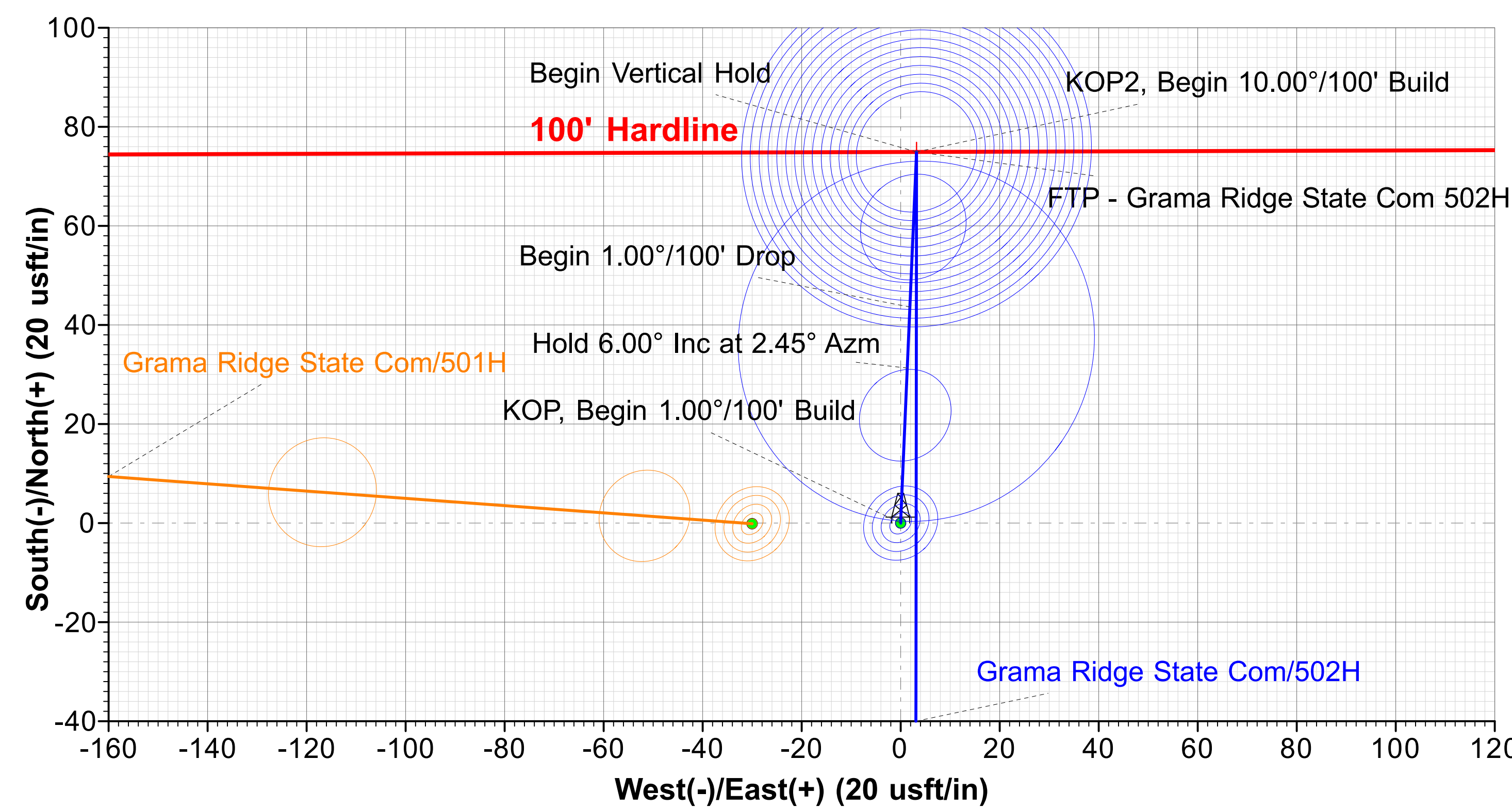
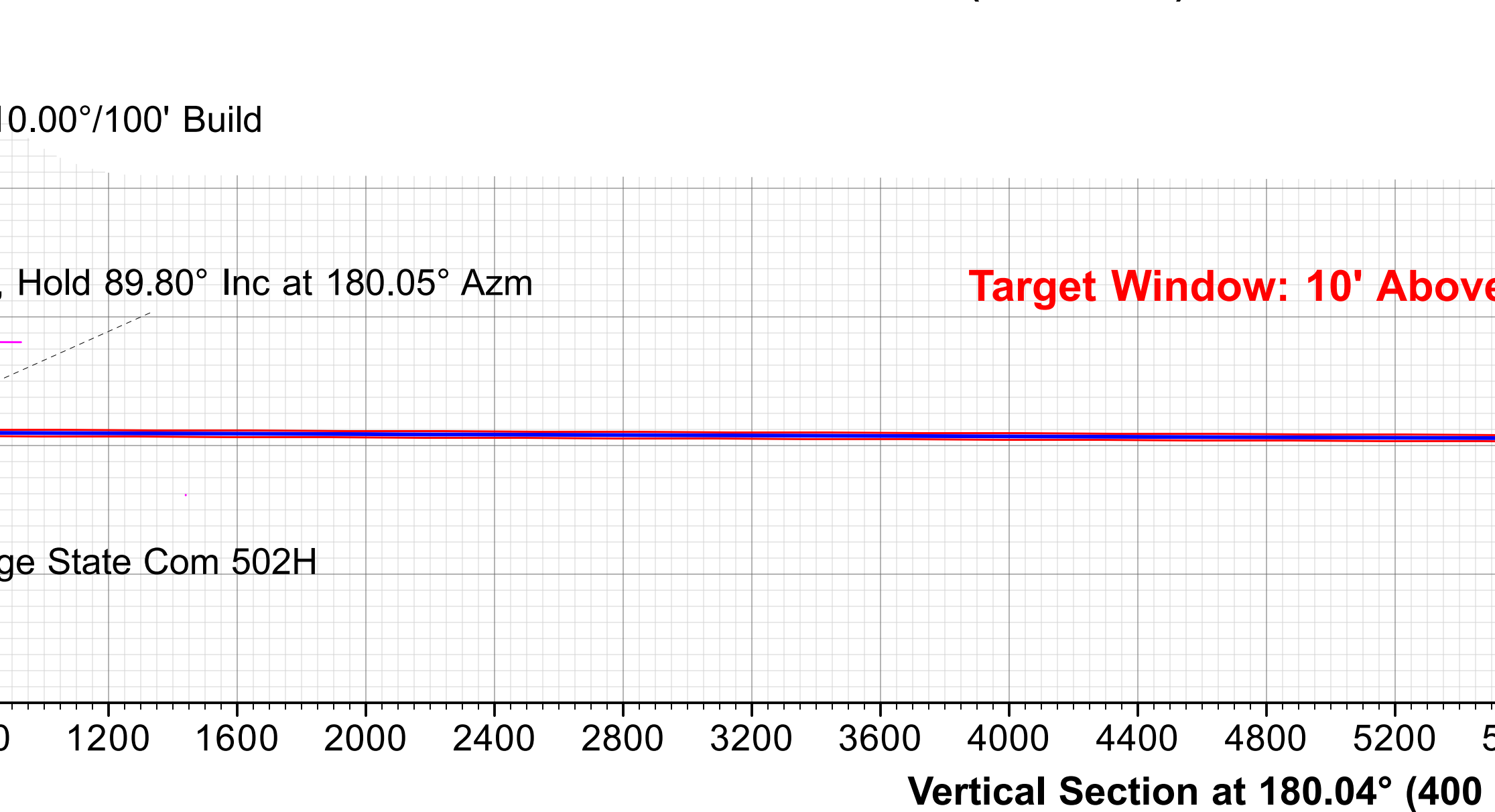
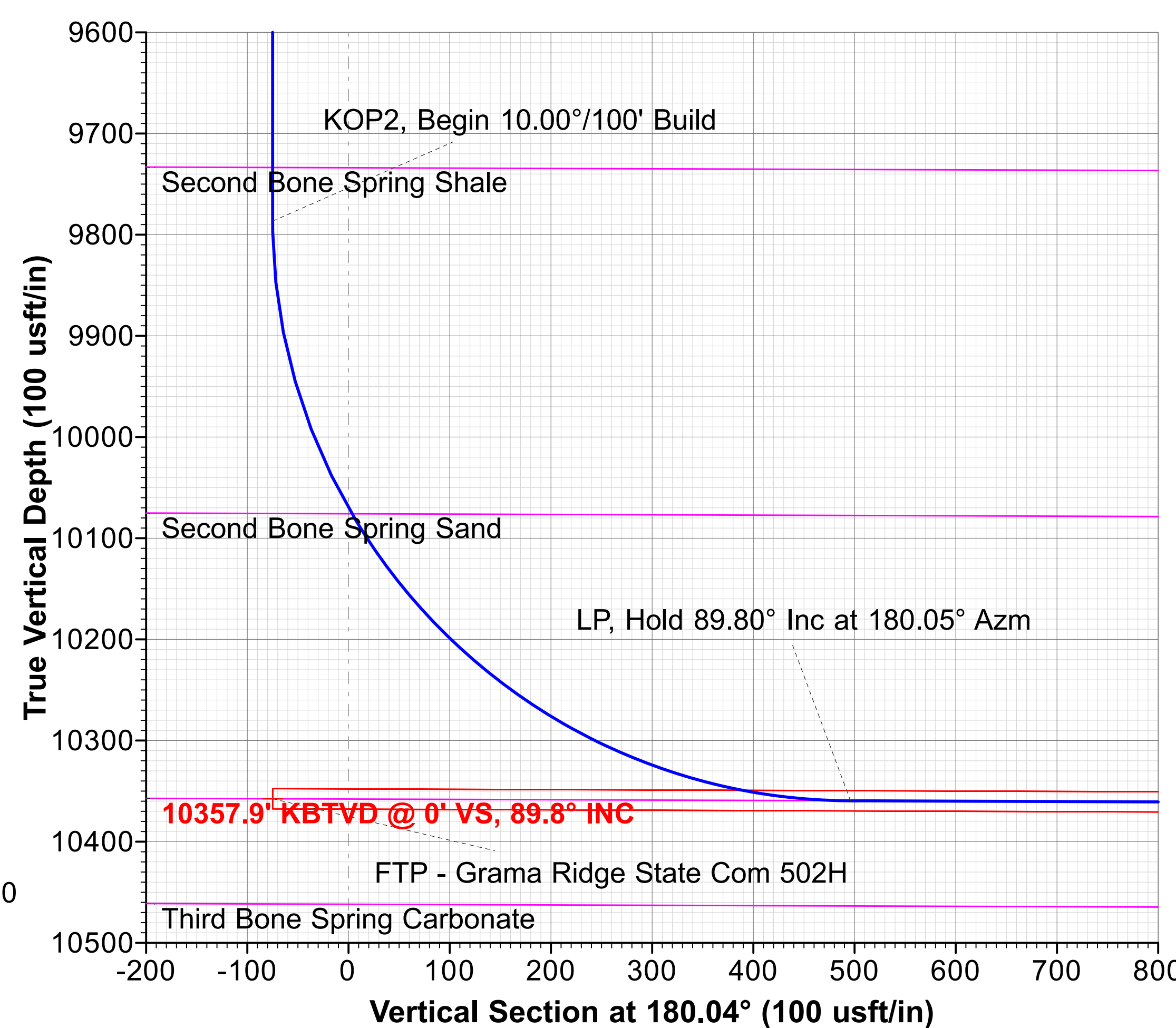
PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: CENTENNIAL RESOURCE PRODUCTION, LLC [372165] 1001 17th Street, Suite 1800 Denver, CO 80202	API Number: 30-025-49157
	Well: GRAMA RIDGE 2 STATE COM #502H
OCD Reviewer	Condition



WELL DETAILS											
					Ground Level:		3669.90				
		+N/-S	+E/-W	Northing	Easting	Latitude	Longitude				
		0.00	0.00	11779895.31	2120250.96	32° 26' 31.983040 N	103° 26' 39.037299 W				
SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00		KOP, Begin 1.00°/100' Build
3	2599.57	6.00	2.45	2598.48	31.31	1.34	1.00	2.45	-31.31		Hold 6.00° Inc at 2.45° Azm
4	2717.66	6.00	2.45	2715.92	43.64	1.86	0.00	0.00	-43.64		Begin 1.00°/100' Drop
5	3317.23	0.00	0.00	3314.40	74.95	3.20	1.00	180.00	-74.95		Begin Vertical Hold
6	9789.51	0.00	0.00	9786.67	74.95	3.20	0.00	0.00	-74.95		KOP2, Begin 10.00°/100' Build
7	10687.51	89.80	180.05	10359.63	-496.01	2.66	10.00	180.05	496.00		LP, Hold 89.80° Inc at 180.05° Azm
8	20548.93	89.80	180.05	10394.05-10357.36	-6.72	0.00	0.00	10357.36	BHL - Grama Ridge State Com 502H		TD at 20548.93
DESIGN TARGET DETAILS											
Name					TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP - Grama Ridge State Com 502H					10357.64	74.95	3.20	11779970.29	2120253.07	32° 26' 32.724672 N	103° 26' 38.999929 W
BHL - Grama Ridge State Com 502H					10394.05	-10357.36	-6.72	11769540.36	2120395.13	32° 24' 49.498551 N	103° 26' 39.114844 W

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1724.90	1724.90	Rustler
2215.89	2215.94	Salado
3393.64	3396.47	Castile
3725.64	3728.47	Base of Salt
4420.64	4423.47	Capitan
5584.64	5587.47	Cherry Canyon
5726.64	5729.47	Manzanita Lime
8366.64	8369.47	Bone Spring Lime
8544.64	8547.47	Avalon
9509.64	9512.47	First Bone Spring Sand
9733.64	9736.47	Second Bone Spring Sand
10075.91	10092.70	Second Bone Spring Sand





Centennial Resources Development, Inc.

**Lea County, NM (NAD83 - UTM Zone 13)
Grama Ridge State Com
502H**

OH

Plan: Plan 2 06-25-21

Standard Planning Report

25 June, 2021





Planning Report



Database:	USA Compass	Local Co-ordinate Reference:	Well 502H
Company:	Centennial Resources Development, Inc.	TVD Reference:	RKB @ 3695.90usft (H&P 313)
Project:	Lea County, NM (NAD83 - UTM Zone 13)	MD Reference:	RKB @ 3695.90usft (H&P 313)
Site:	Grama Ridge State Com	North Reference:	True
Well:	502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-25-21		

Project	Lea County, NM (NAD83 - UTM Zone 13)		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		Using geodetic scale factor

Site	Grama Ridge State Com		
Site Position:		Northing:	11,779,894.75 usft
From:	Map	Easting:	2,120,220.98 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 26' 31.981821 N
		Longitude:	103° 26' 39.387230 W

Well	502H		
Well Position	+N/-S	0.12 usft	Northing:
	+E/-W	29.99 usft	Easting:
Position Uncertainty	1.00 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	MVHD	8/24/2021	6.43
			Dip Angle
			(°)
			60.17
			Field Strength
			(nT)
			47,847.65312182

Design	Plan 2 06-25-21		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			180.04

Plan Survey Tool Program	Date	6/25/2021		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(usft)	(usft)			
1	0.00	20,548.93 Plan 2 06-25-21 (OH)	MWD+IFR1+MS	
			OWSG MWD + IFR1 + Multi-St	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	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	
2,599.57	6.00	2.45	2,598.48	31.31	1.34	1.00	1.00	0.00	2.45	
2,717.66	6.00	2.45	2,715.92	43.64	1.86	0.00	0.00	0.00	0.00	
3,317.23	0.00	0.00	3,314.40	74.95	3.20	1.00	-1.00	0.00	180.00	
9,789.51	0.00	0.00	9,786.67	74.95	3.20	0.00	0.00	0.00	0.00	
10,687.51	89.80	180.05	10,359.63	-496.01	2.66	10.00	10.00	0.00	180.05	
20,548.93	89.80	180.05	10,394.05	-10,357.36	-6.72	0.00	0.00	0.00	0.00	BHL - Grama Ridge S



Planning Report



Database:	USA Compass	Local Co-ordinate Reference:	Well 502H
Company:	Centennial Resources Development, Inc.	TVD Reference:	RKB @ 3695.90usft (H&P 313)
Project:	Lea County, NM (NAD83 - UTM Zone 13)	MD Reference:	RKB @ 3695.90usft (H&P 313)
Site:	Grama Ridge State Com	North Reference:	True
Well:	502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-25-21		

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
1,724.90	0.00	0.00	1,724.90	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 1.00°/100' Build									
2,100.00	1.00	2.45	2,099.99	0.87	0.04	-0.87	1.00	1.00	0.00
2,200.00	2.00	2.45	2,199.96	3.49	0.15	-3.49	1.00	1.00	0.00
2,215.94	2.16	2.45	2,215.89	4.06	0.17	-4.07	1.00	1.00	0.00
Salado									
2,300.00	3.00	2.45	2,299.86	7.85	0.34	-7.85	1.00	1.00	0.00
2,400.00	4.00	2.45	2,399.68	13.94	0.60	-13.94	1.00	1.00	0.00
2,500.00	5.00	2.45	2,499.37	21.78	0.93	-21.78	1.00	1.00	0.00
2,599.57	6.00	2.45	2,598.48	31.31	1.34	-31.31	1.00	1.00	0.00
Hold 6.00° Inc at 2.45° Azm									
2,600.00	6.00	2.45	2,598.90	31.36	1.34	-31.36	0.00	0.00	0.00
2,700.00	6.00	2.45	2,698.36	41.79	1.79	-41.80	0.00	0.00	0.00
2,717.66	6.00	2.45	2,715.92	43.64	1.86	-43.64	0.00	0.00	0.00
Begin 1.00°/100' Drop									
2,800.00	5.17	2.45	2,797.87	51.64	2.21	-51.64	1.00	-1.00	0.00
2,900.00	4.17	2.45	2,897.54	59.78	2.55	-59.78	1.00	-1.00	0.00
3,000.00	3.17	2.45	2,997.33	66.18	2.83	-66.18	1.00	-1.00	0.00
3,100.00	2.17	2.45	3,097.22	70.84	3.03	-70.84	1.00	-1.00	0.00
3,200.00	1.17	2.45	3,197.17	73.75	3.15	-73.76	1.00	-1.00	0.00
3,300.00	0.17	2.45	3,297.17	74.93	3.20	-74.93	1.00	-1.00	0.00
3,317.23	0.00	0.00	3,314.40	74.95	3.20	-74.95	1.00	-1.00	0.00
Begin Vertical Hold									
3,396.47	0.00	0.00	3,393.64	74.95	3.20	-74.95	0.00	0.00	0.00
Castile									
3,728.47	0.00	0.00	3,725.64	74.95	3.20	-74.95	0.00	0.00	0.00
Base of Salt									
4,423.47	0.00	0.00	4,420.64	74.95	3.20	-74.95	0.00	0.00	0.00
Capitan									
5,587.47	0.00	0.00	5,584.64	74.95	3.20	-74.95	0.00	0.00	0.00
Cherry Canyon									
5,729.47	0.00	0.00	5,726.64	74.95	3.20	-74.95	0.00	0.00	0.00
Manzanita Lime									
8,369.47	0.00	0.00	8,366.64	74.95	3.20	-74.95	0.00	0.00	0.00
Bone Spring Lime									
8,547.47	0.00	0.00	8,544.64	74.95	3.20	-74.95	0.00	0.00	0.00
Avalon									
9,512.47	0.00	0.00	9,509.64	74.95	3.20	-74.95	0.00	0.00	0.00
First Bone Spring Sand									
9,736.47	0.00	0.00	9,733.64	74.95	3.20	-74.95	0.00	0.00	0.00
Second Bone Spring Shale									
9,789.51	0.00	0.00	9,786.67	74.95	3.20	-74.95	0.00	0.00	0.00
KOP2, Begin 10.00°/100' Build									
9,800.00	1.05	180.05	9,797.17	74.86	3.20	-74.86	10.00	10.00	0.00
9,900.00	11.05	180.05	9,896.48	64.33	3.19	-64.33	10.00	10.00	0.00
10,000.00	21.05	180.05	9,992.46	36.72	3.17	-36.72	10.00	10.00	0.00
10,092.70	30.32	180.05	10,075.91	-3.41	3.13	3.41	10.00	10.00	0.00
Second Bone Spring Sand									
10,100.00	31.05	180.05	10,082.19	-7.14	3.12	7.14	10.00	10.00	0.00



Planning Report



Database:	USA Compass	Local Co-ordinate Reference:	Well 502H
Company:	Centennial Resources Development, Inc.	TVD Reference:	RKB @ 3695.90usft (H&P 313)
Project:	Lea County, NM (NAD83 - UTM Zone 13)	MD Reference:	RKB @ 3695.90usft (H&P 313)
Site:	Grama Ridge State Com	North Reference:	True
Well:	502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-25-21		

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)	
10,200.00	41.05	180.05	10,162.94	-65.91	3.07	65.91	10.00	10.00	0.00	
10,300.00	51.05	180.05	10,232.26	-137.82	3.00	137.81	10.00	10.00	0.00	
10,400.00	61.05	180.05	10,288.03	-220.66	2.92	220.66	10.00	10.00	0.00	
10,500.00	71.05	180.05	10,328.58	-311.94	2.83	311.93	10.00	10.00	0.00	
10,600.00	81.05	180.05	10,352.65	-408.86	2.74	408.86	10.00	10.00	0.00	
10,687.51	89.80	180.05	10,359.63	-496.01	2.66	496.00	10.00	10.00	0.00	
LP, Hold 89.80° Inc at 180.05° Azm										
10,700.00	89.80	180.05	10,359.67	-508.50	2.65	508.50	0.00	0.00	0.00	
10,800.00	89.80	180.05	10,360.02	-608.50	2.55	608.50	0.00	0.00	0.00	
10,900.00	89.80	180.05	10,360.37	-708.50	2.46	708.50	0.00	0.00	0.00	
11,000.00	89.80	180.05	10,360.72	-808.50	2.36	808.50	0.00	0.00	0.00	
11,100.00	89.80	180.05	10,361.07	-908.50	2.27	908.50	0.00	0.00	0.00	
11,200.00	89.80	180.05	10,361.42	-1,008.50	2.17	1,008.49	0.00	0.00	0.00	
11,300.00	89.80	180.05	10,361.77	-1,108.50	2.08	1,108.49	0.00	0.00	0.00	
11,400.00	89.80	180.05	10,362.11	-1,208.50	1.98	1,208.49	0.00	0.00	0.00	
11,500.00	89.80	180.05	10,362.46	-1,308.49	1.89	1,308.49	0.00	0.00	0.00	
11,600.00	89.80	180.05	10,362.81	-1,408.49	1.79	1,408.49	0.00	0.00	0.00	
11,700.00	89.80	180.05	10,363.16	-1,508.49	1.70	1,508.49	0.00	0.00	0.00	
11,800.00	89.80	180.05	10,363.51	-1,608.49	1.60	1,608.49	0.00	0.00	0.00	
11,900.00	89.80	180.05	10,363.86	-1,708.49	1.51	1,708.49	0.00	0.00	0.00	
12,000.00	89.80	180.05	10,364.21	-1,808.49	1.41	1,808.49	0.00	0.00	0.00	
12,100.00	89.80	180.05	10,364.56	-1,908.49	1.32	1,908.49	0.00	0.00	0.00	
12,200.00	89.80	180.05	10,364.91	-2,008.49	1.22	2,008.49	0.00	0.00	0.00	
12,300.00	89.80	180.05	10,365.26	-2,108.49	1.13	2,108.49	0.00	0.00	0.00	
12,400.00	89.80	180.05	10,365.61	-2,208.49	1.03	2,208.49	0.00	0.00	0.00	
12,500.00	89.80	180.05	10,365.95	-2,308.49	0.94	2,308.49	0.00	0.00	0.00	
12,600.00	89.80	180.05	10,366.30	-2,408.49	0.84	2,408.49	0.00	0.00	0.00	
12,700.00	89.80	180.05	10,366.65	-2,508.49	0.75	2,508.49	0.00	0.00	0.00	
12,800.00	89.80	180.05	10,367.00	-2,608.49	0.65	2,608.48	0.00	0.00	0.00	
12,900.00	89.80	180.05	10,367.35	-2,708.49	0.56	2,708.48	0.00	0.00	0.00	
13,000.00	89.80	180.05	10,367.70	-2,808.48	0.46	2,808.48	0.00	0.00	0.00	
13,100.00	89.80	180.05	10,368.05	-2,908.48	0.37	2,908.48	0.00	0.00	0.00	
13,200.00	89.80	180.05	10,368.40	-3,008.48	0.27	3,008.48	0.00	0.00	0.00	
13,300.00	89.80	180.05	10,368.75	-3,108.48	0.18	3,108.48	0.00	0.00	0.00	
13,400.00	89.80	180.05	10,369.10	-3,208.48	0.08	3,208.48	0.00	0.00	0.00	
13,500.00	89.80	180.05	10,369.44	-3,308.48	-0.02	3,308.48	0.00	0.00	0.00	
13,600.00	89.80	180.05	10,369.79	-3,408.48	-0.11	3,408.48	0.00	0.00	0.00	
13,700.00	89.80	180.05	10,370.14	-3,508.48	-0.21	3,508.48	0.00	0.00	0.00	
13,800.00	89.80	180.05	10,370.49	-3,608.48	-0.30	3,608.48	0.00	0.00	0.00	
13,900.00	89.80	180.05	10,370.84	-3,708.48	-0.40	3,708.48	0.00	0.00	0.00	
14,000.00	89.80	180.05	10,371.19	-3,808.48	-0.49	3,808.48	0.00	0.00	0.00	
14,100.00	89.80	180.05	10,371.54	-3,908.48	-0.59	3,908.48	0.00	0.00	0.00	
14,200.00	89.80	180.05	10,371.89	-4,008.48	-0.68	4,008.48	0.00	0.00	0.00	
14,300.00	89.80	180.05	10,372.24	-4,108.48	-0.78	4,108.48	0.00	0.00	0.00	
14,400.00	89.80	180.05	10,372.59	-4,208.48	-0.87	4,208.48	0.00	0.00	0.00	
14,500.00	89.80	180.05	10,372.94	-4,308.47	-0.97	4,308.47	0.00	0.00	0.00	
14,600.00	89.80	180.05	10,373.28	-4,408.47	-1.06	4,408.47	0.00	0.00	0.00	
14,700.00	89.80	180.05	10,373.63	-4,508.47	-1.16	4,508.47	0.00	0.00	0.00	
14,800.00	89.80	180.05	10,373.98	-4,608.47	-1.25	4,608.47	0.00	0.00	0.00	
14,900.00	89.80	180.05	10,374.33	-4,708.47	-1.35	4,708.47	0.00	0.00	0.00	
15,000.00	89.80	180.05	10,374.68	-4,808.47	-1.44	4,808.47	0.00	0.00	0.00	
15,100.00	89.80	180.05	10,375.03	-4,908.47	-1.54	4,908.47	0.00	0.00	0.00	
15,200.00	89.80	180.05	10,375.38	-5,008.47	-1.63	5,008.47	0.00	0.00	0.00	
15,300.00	89.80	180.05	10,375.73	-5,108.47	-1.73	5,108.47	0.00	0.00	0.00	



Planning Report



Database:	USA Compass	Local Co-ordinate Reference:	Well 502H
Company:	Centennial Resources Development, Inc.	TVD Reference:	RKB @ 3695.90usft (H&P 313)
Project:	Lea County, NM (NAD83 - UTM Zone 13)	MD Reference:	RKB @ 3695.90usft (H&P 313)
Site:	Grama Ridge State Com	North Reference:	True
Well:	502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-25-21		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,400.00	89.80	180.05	10,376.08	-5,208.47	-1.82	5,208.47	0.00	0.00	0.00	
15,500.00	89.80	180.05	10,376.43	-5,308.47	-1.92	5,308.47	0.00	0.00	0.00	
15,600.00	89.80	180.05	10,376.78	-5,408.47	-2.01	5,408.47	0.00	0.00	0.00	
15,700.00	89.80	180.05	10,377.12	-5,508.47	-2.11	5,508.47	0.00	0.00	0.00	
15,800.00	89.80	180.05	10,377.47	-5,608.47	-2.20	5,608.47	0.00	0.00	0.00	
15,900.00	89.80	180.05	10,377.82	-5,708.47	-2.30	5,708.47	0.00	0.00	0.00	
16,000.00	89.80	180.05	10,378.17	-5,808.47	-2.39	5,808.47	0.00	0.00	0.00	
16,100.00	89.80	180.05	10,378.52	-5,908.46	-2.49	5,908.46	0.00	0.00	0.00	
16,200.00	89.80	180.05	10,378.87	-6,008.46	-2.58	6,008.46	0.00	0.00	0.00	
16,300.00	89.80	180.05	10,379.22	-6,108.46	-2.68	6,108.46	0.00	0.00	0.00	
16,400.00	89.80	180.05	10,379.57	-6,208.46	-2.77	6,208.46	0.00	0.00	0.00	
16,500.00	89.80	180.05	10,379.92	-6,308.46	-2.87	6,308.46	0.00	0.00	0.00	
16,600.00	89.80	180.05	10,380.27	-6,408.46	-2.96	6,408.46	0.00	0.00	0.00	
16,700.00	89.80	180.05	10,380.61	-6,508.46	-3.06	6,508.46	0.00	0.00	0.00	
16,800.00	89.80	180.05	10,380.96	-6,608.46	-3.15	6,608.46	0.00	0.00	0.00	
16,900.00	89.80	180.05	10,381.31	-6,708.46	-3.25	6,708.46	0.00	0.00	0.00	
17,000.00	89.80	180.05	10,381.66	-6,808.46	-3.34	6,808.46	0.00	0.00	0.00	
17,100.00	89.80	180.05	10,382.01	-6,908.46	-3.44	6,908.46	0.00	0.00	0.00	
17,200.00	89.80	180.05	10,382.36	-7,008.46	-3.53	7,008.46	0.00	0.00	0.00	
17,300.00	89.80	180.05	10,382.71	-7,108.46	-3.63	7,108.46	0.00	0.00	0.00	
17,400.00	89.80	180.05	10,383.06	-7,208.46	-3.72	7,208.46	0.00	0.00	0.00	
17,500.00	89.80	180.05	10,383.41	-7,308.46	-3.82	7,308.46	0.00	0.00	0.00	
17,600.00	89.80	180.05	10,383.76	-7,408.45	-3.91	7,408.46	0.00	0.00	0.00	
17,700.00	89.80	180.05	10,384.11	-7,508.45	-4.01	7,508.45	0.00	0.00	0.00	
17,800.00	89.80	180.05	10,384.45	-7,608.45	-4.10	7,608.45	0.00	0.00	0.00	
17,900.00	89.80	180.05	10,384.80	-7,708.45	-4.20	7,708.45	0.00	0.00	0.00	
18,000.00	89.80	180.05	10,385.15	-7,808.45	-4.29	7,808.45	0.00	0.00	0.00	
18,100.00	89.80	180.05	10,385.50	-7,908.45	-4.39	7,908.45	0.00	0.00	0.00	
18,200.00	89.80	180.05	10,385.85	-8,008.45	-4.48	8,008.45	0.00	0.00	0.00	
18,300.00	89.80	180.05	10,386.20	-8,108.45	-4.58	8,108.45	0.00	0.00	0.00	
18,400.00	89.80	180.05	10,386.55	-8,208.45	-4.67	8,208.45	0.00	0.00	0.00	
18,500.00	89.80	180.05	10,386.90	-8,308.45	-4.77	8,308.45	0.00	0.00	0.00	
18,600.00	89.80	180.05	10,387.25	-8,408.45	-4.87	8,408.45	0.00	0.00	0.00	
18,700.00	89.80	180.05	10,387.60	-8,508.45	-4.96	8,508.45	0.00	0.00	0.00	
18,800.00	89.80	180.05	10,387.95	-8,608.45	-5.06	8,608.45	0.00	0.00	0.00	
18,900.00	89.80	180.05	10,388.29	-8,708.45	-5.15	8,708.45	0.00	0.00	0.00	
19,000.00	89.80	180.05	10,388.64	-8,808.45	-5.25	8,808.45	0.00	0.00	0.00	
19,100.00	89.80	180.05	10,388.99	-8,908.44	-5.34	8,908.45	0.00	0.00	0.00	
19,200.00	89.80	180.05	10,389.34	-9,008.44	-5.44	9,008.45	0.00	0.00	0.00	
19,300.00	89.80	180.05	10,389.69	-9,108.44	-5.53	9,108.45	0.00	0.00	0.00	
19,400.00	89.80	180.05	10,390.04	-9,208.44	-5.63	9,208.44	0.00	0.00	0.00	
19,500.00	89.80	180.05	10,390.39	-9,308.44	-5.72	9,308.44	0.00	0.00	0.00	
19,600.00	89.80	180.05	10,390.74	-9,408.44	-5.82	9,408.44	0.00	0.00	0.00	
19,700.00	89.80	180.05	10,391.09	-9,508.44	-5.91	9,508.44	0.00	0.00	0.00	
19,800.00	89.80	180.05	10,391.44	-9,608.44	-6.01	9,608.44	0.00	0.00	0.00	
19,900.00	89.80	180.05	10,391.79	-9,708.44	-6.10	9,708.44	0.00	0.00	0.00	
20,000.00	89.80	180.05	10,392.13	-9,808.44	-6.20	9,808.44	0.00	0.00	0.00	
20,100.00	89.80	180.05	10,392.48	-9,908.44	-6.29	9,908.44	0.00	0.00	0.00	
20,200.00	89.80	180.05	10,392.83	-10,008.44	-6.39	10,008.44	0.00	0.00	0.00	
20,300.00	89.80	180.05	10,393.18	-10,108.44	-6.48	10,108.44	0.00	0.00	0.00	
20,400.00	89.80	180.05	10,393.53	-10,208.44	-6.58	10,208.44	0.00	0.00	0.00	
20,500.00	89.80	180.05	10,393.88	-10,308.44	-6.67	10,308.44	0.00	0.00	0.00	
20,548.93	89.80	180.05	10,394.05	-10,357.36	-6.72	10,357.36	0.00	0.00	0.00	



Planning Report



Database:	USA Compass	Local Co-ordinate Reference:	Well 502H
Company:	Centennial Resources Development, Inc.	TVD Reference:	RKB @ 3695.90usft (H&P 313)
Project:	Lea County, NM (NAD83 - UTM Zone 13)	MD Reference:	RKB @ 3695.90usft (H&P 313)
Site:	Grama Ridge State Com	North Reference:	True
Well:	502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-25-21		

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)
TD at 20548.93									

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									
FTP - Grama Ridge Stat	0.00	0.00	10,357.64	74.95	3.20	11,779,970.29	2,120,253.07	32° 26' 32.724672 N 103° 26' 38.999929 W	
- plan misses target center by 235.99usft at 10233.76usft MD (10187.73 TVD, -88.82 N, 3.05 E)									
- Point									
BHL - Grama Ridge Stat	0.20	180.05	10,394.05	-10,357.36	-6.72	11,769,540.36	2,120,395.13	32° 24' 49.498551 N 103° 26' 39.114845 W	
- plan hits target center									
- Rectangle (sides W0.00 H10,432.36 D20.00)									

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,724.90	1,724.90	Rustler		0.20	180.04
2,215.94	2,215.89	Salado		0.20	180.04
3,396.47	3,393.64	Castile		0.20	180.04
3,728.47	3,725.64	Base of Salt		0.20	180.04
4,423.47	4,420.64	Capitan		0.20	180.04
5,587.47	5,584.64	Cherry Canyon		0.20	180.04
5,729.47	5,726.64	Manzanita Lime		0.20	180.04
8,369.47	8,366.64	Bone Spring Lime		0.20	180.04
8,547.47	8,544.64	Avalon		0.20	180.04
9,512.47	9,509.64	First Bone Spring Sand		0.20	180.04
9,736.47	9,733.64	Second Bone Spring Shale		0.20	180.04
10,092.70	10,075.91	Second Bone Spring Sand		0.20	180.04

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,000.00	2,000.00	0.00	0.00	KOP, Begin 1.00°/100' Build
2,599.57	2,598.48	31.31	1.34	Hold 6.00° Inc at 2.45° Azm
2,717.66	2,715.92	43.64	1.86	Begin 1.00°/100' Drop
3,317.23	3,314.40	74.95	3.20	Begin Vertical Hold
9,789.51	9,786.67	74.95	3.20	KOP2, Begin 10.00°/100' Build
10,687.51	10,359.63	-496.01	2.66	LP, Hold 89.80° Inc at 180.05° Azm
20,548.93	10,394.05	-10,357.36	-6.72	TD at 20548.93

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

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

Submit Electronically
Via E-permitting

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: Centennial Resource Prod, LLC **OGRID:** 372165 **Date:** 07 / 01 / 21

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
Grama Ridge 2 State Com 501H		M-2-22S-34E	300FSL&1245FWL	1500 BBL/D	1800 MCF/D	9750 BBL/D
Grama Ridge 2 State Com 502H		M-2-22S-34E	300FSL&1275FWL	1500 BBL/D	1800 MCF/D	9750 BBL/D

IV. Central Delivery Point Name: 3Bear Grama Ridge CDP [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
Grama Ridge 2 State Com 501H		08/03/2021	08/11/2021	09/04/2021	09/16/2021	09/16/2021
Grama Ridge 2 State Com 502H		08/13/2021	08/21/2021	09/04/2021	09/16/2021	09/16/2021

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.

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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:	Stewart MacCallum
Title:	Director of Marketing
E-mail Address:	Stewart.MacCallum@cdevinc.com
Date:	07/01/2021
Phone:	(720) 499-1458

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

Approved By:
Title:
Approval Date:
Conditions of Approval:

Centennial Resource Production, LLC (372165)

Natural Gas Management Plan Descriptions**VI. Separation Equipment:**

Centennial utilizes a production forecast from our Reservoir Engineering team to appropriately size each permanent, 3-phase separator and heater treater utilized for production operations. Our goal is to maintain 5 minutes of retention time in the test vessel and 20 minutes in the heater treater at peak production rates. The gas produced is routed from the separator to the gas sales line.

VII. Operational Practices:*Drilling*

During Centennial's drilling operations it is uncommon for venting or flaring to occur. If flaring is needed due to safety concerns, gas will be routed to a flare and volumes will be estimated.

Flowback

During completion/recompletion flowback operations, after separation flowback begins and as soon as it is technically feasible, Centennial routes gas through a permanent separator and the controlled facility where the gas is either sold or flared through a high-pressure flare if needed.

Production

Per 19.15.27.8.D, Centennial's facilities are designed to minimize waste. Our produced gas will only be vented or flared in an emergency or malfunction situation, except as allowed for normal operations noted in 19.15.27.8.D(2) & (4). All gas that is flared is metered. All gas that may be vented will be estimated.

Performance Standards

Centennial utilizes a production forecast from our Reservoir Engineering team to appropriately size each permanent, 3-phase separator and heater treater utilized for production operations.

All of Centennial's permanent storage tanks associated with production operations which are routed to a flare or control device are equipped with an automatic gauging system.

All of Centennial's flare stacks, both currently installed and for future installation, are:

- 1) Appropriately sized and designed to ensure proper combustion efficiency.
- 2) Equipped with an automatic ignitor or continuous pilot.
- 3) Anchored and located at least 100 feet from the well and storage tanks.

Centennial's field operations and HSE teams have implemented an AVO inspection schedule that adheres to the requirements of 19.15.27.8.E(5).

All of our operations and facilities are designed to minimize waste. We routinely employ the following methods and practices:

- Closed-loop systems
- Enclosed and properly sized tanks

Centennial Resource Production, LLC (372165)

- Vapor recovery units to maximize recovery of low-pressure gas streams and potential unauthorized emissions
- Low-emitting or electric engines whenever practical
- Combustors and flare stacks in the event of a malfunction or emergency
- Routine facility inspections to identify leaking components, functioning control devices, such as flares and combustors, and repair / replacement of malfunctioning components where applicable

Measurement or estimation

Centennial measures or estimates the volumes of natural gas vented, flared and/or beneficially used for all of our drilling, completing and producing wells. We utilize accepted industry standards and methodology which can be independently verified. Annual GOR testing is completed on our wells and will be submitted as required by the OCD. None of our equipment is designed to allow diversion around metering elements except during inspection, maintenance and repair operations.

VIII. Best Management Practices:

Centennial utilizes the following BMPs to minimize venting during active and planned maintenance activities:

- Use a closed-loop process wherever possible during planned maintenance activities, such as blowdowns, liquid removal, and work over operations.
- Employ low-emitting or electric engines for equipment, such as compressors
- Adhere to a strict preventative maintenance program which includes routine facility inspections, identification of component malfunctions, and repairing or replacing components such as hatches, seals, valves, etc. where applicable
- Utilize vapor recovery units (VRU's) to maximize recovery of volumes of low-pressure gas streams and potential unauthorized emissions
- Route low pressure gas and emissions streams to a combustion device to prevent venting where necessary