

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

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

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

WELL API NO. 30-015-46135
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name HADES 2 SB STATE COM
8. Well Number 3H
9. OGRID Number 372098
10. Pool name or Wildcat CULEBRA BLUFF; BONE SPRING, SOUTH

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	
1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐	
2. Name of Operator Marathon Oil Permian LLC	
3. Address of Operator 5555 San Felipe St., Houston, TX 77056	
4. Well Location Unit Letter <u>A</u> : <u>521</u> feet from the <u>NORTH</u> line and <u>1070</u> feet from the <u>EAST</u> line Section <u>2</u> Township <u>23S</u> Range <u>28E</u> NMPM County <u>EDDY</u>	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3068' GR	

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☒	COMMENCE DRILLING OPNS. ☐	P AND A ☐
PULL OR ALTER CASING ☐	MULTIPLE COMPL ☐	CASING/CEMENT JOB ☐	
DOWNHOLE COMMINGLE ☐			
CLOSED-LOOP SYSTEM ☐			
OTHER: ☐		OTHER: ☐	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Marathon Oil Permian LLC requests to make the following changes to the approved APD.

-Change SHL
From 521' FNL 1070' FEL
To 521' FNL 1040' FEL

-Change proposed casing and cementing program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sack of Cement	TOC
Surf	17 1/2	13 3/8	54.5	450	470	0
Int1	12 1/4	9 5/8	36	2550	503	0
Prod	8 3/4	5 1/2	17	13301	2360	2250

Spud Date:

10/24/2019

Rig Release Date:

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

SIGNATURE _____ TITLE CTR - Technician HES DATE 11/12/2019

Type or print name Adrian Covarrubias E-mail address: acovarrubias@marathonoil.com PHONE: 713-296-3368

For State Use Only

APPROVED BY: Raymond W. Dindley TITLE Geologist DATE 11-18-19
Conditions of Approval (if any):

District I
1625 N. French Dr., Hobbs, NM 88240
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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 APD Number 30-015-46135	² Pool Code 15011	³ Pool Name CULEBRA BLUFF; BONE SPRING, SOUTH
⁴ Property Code 325766	⁵ Property Name HADES 2 SB STATE COM	⁶ Well Number 3H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3070'

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
A	2	23S	28E		521	NORTH	1040	EAST	EDDY

¹¹ 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
P	2	23S	28E		100	SOUTH	1019	EAST	EDDY

¹² Dedicated Acres 318.97	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.

Defining Well	CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 629075.09' / Y: 488269.73' B - X: 629059.56' / Y: 482925.07' C - X: 626359.90' / Y: 482920.26' D - X: 626386.21' / Y: 485587.65' E - X: 626412.61' / Y: 488262.71'	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: <i>[Signature]</i> Date: 11/11/2019 Printed Name: MELISSA SZUDERA E-mail Address:
	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 587892.62' / Y: 488208.99' B - X: 587876.94' / Y: 482865.46' C - X: 585177.32' / Y: 482860.69' D - X: 585203.71' / Y: 485528.00' E - X: 585230.17' / Y: 488203.01'	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. NOVEMBER 5, 2019 Date of Survey Signature and Seal of Professional Surveyor: <i>[Signature]</i> Certificate Number: DAVID W. MYERS 11403
	SURFACE HOLE LOCATION 521' FNL 1040' FEL, SECTION 2 NAD 83, SPCS NM EAST X: 628033.97' / Y: 487746.10' LAT: 32.34057311N / LON: 104.05261441W NAD 27, SPCS NM EAST X: 586851.50' / Y: 487686.39' LAT: 32.34045226N / LON: 104.05211888W	
	KICK OFF POINT / FIRST TAKE POINT 100' FNL 1002' FEL, SECTION 2 NAD 83, SPCS NM EAST X: 628073.22' / Y: 488167.09' LAT: 32.34173004N / LON: 104.05248374W NAD 27, SPCS NM EAST X: 586890.76' / Y: 488107.37' LAT: 32.34160920N / LON: 104.05198817W	
LAST TAKE POINT/BOTTOM HOLE LOCATION 100' FSL 1019' FEL, SECTION 2 NAD 83, SPCS NM EAST X: 628040.38' / Y: 483023.26' LAT: 32.32759078N / LON: 104.05263374W NAD 27, SPCS NM EAST X: 586857.78' / Y: 482963.66' LAT: 32.32746982N / LON: 104.05213867W		

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99977221 Convergence: 00°07'02.70001"



Marathon Oil Permian LLC

RKB (Precision 601) 25' + GL(3069') @ 3094.00usft

3069.00

Project: Eddy County, New Mexico (NAD27)

Site: Hades 2 SB State Com Pad (Grid)

Well: Hades 2 SB State Com 3H

Wellbore: Wellbore #1

Design: Plan 2

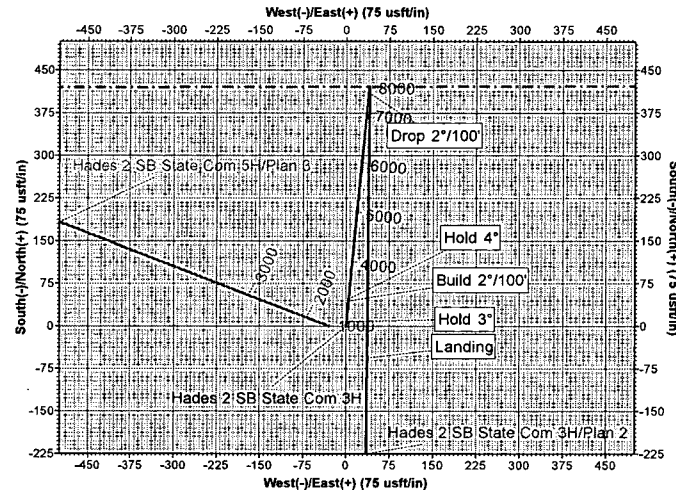
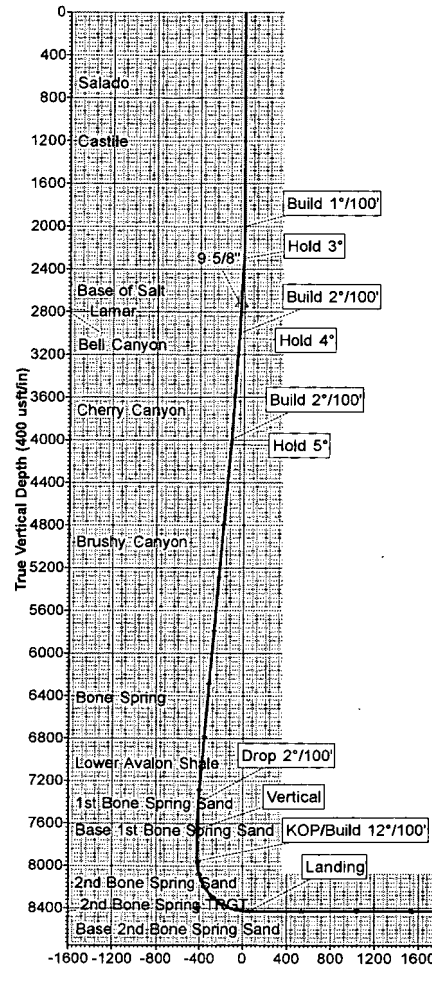
Rig:

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001



Azimuths to Grid North
True North: -0.15°
Magnetic North: 9.93°
Magnetic Field
Strength: 47882.1nT
Dip Angle: 60.07°
Date: 10/18/2019
Model: HDGM_2019

WELL DETAILS									
3069.00									
+N-S	+E-W	Northing	Easting	Latitude	Longitude				
0.00	0.00	487686.39	586851.50	32.34045225	-104.05211887				
SECTION DETAILS									
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	Build 1°/100'
2300.00	3.00	5.34	2299.86	7.82	0.73	1.00	5.34	-7.82	Hold 3°
3000.00	3.00	5.34	2998.90	44.29	4.14	0.00	0.00	-44.29	Build 2°/100'
3050.00	4.00	5.34	3048.81	47.33	4.42	2.00	0.00	-47.33	Hold 4°
4000.00	4.00	5.34	3996.50	113.31	10.59	0.00	0.00	-113.30	Build 2°/100'
4050.00	5.00	5.34	4046.34	117.22	10.96	2.00	0.00	-117.21	Hold 5°
7425.00	5.00	5.34	7408.50	410.09	38.33	0.00	0.00	-410.04	Drop 2°/100'
7675.00	0.00	0.00	7658.18	420.95	39.35	2.00	180.00	-420.90	Vertical
7969.36	0.00	0.00	7952.54	420.95	39.35	0.00	0.00	-420.90	KOP/Build 12°/100'
8719.36	90.00	180.37	8430.00	-56.51	36.26	12.00	180.37	56.55	Landing
13385.68	90.00	180.37	8430.00	-4722.73	6.28	0.00	0.00	4722.73	TD at 13385.68
DESIGN TARGET DETAILS									
Name	+N-S	+E-W	Northing	Easting	Latitude	Longitude			
3H KOP/FTP (100' FNL - 2310' FEL)	420.98	39.26	488107.37	586890.76	32.34160921	-104.05198817			
3H LTP/BHL (100' FSL - 2310' FEL)	-4722.73	6.28	482963.66	586857.78	32.32746983	-104.05213867			

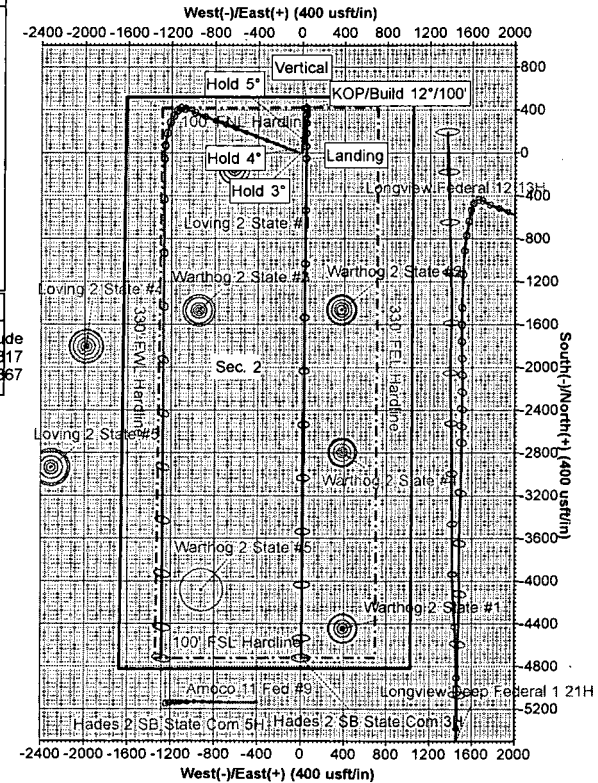


Target Line

8430' TVD @ 0° VS 90°

Hades 2 SB State Com 3H/Plan 2

3H LTP/BHL (100' FSL - 2310' FEL)



HALLIBURTON | Sperry Drilling

Marathon Oil Permian LLC

Eddy County, New Mexico (NAD27) Hades 2 SB State Com Pad (Grid)

API#

Hades 2 SB State Com 3H

SHL: (521' FNL - 1040' FEL)

Wellbore #1

Plan: Plan 2

Please review plan for Magnetic Toolface Switchover.

Highlighted inclination-tangent sections are between 4 and 6°.

Sperry Drilling Services

Combo Report

01 November, 2019

Well Coordinates: 32.34045225
-104.05211887

NAD 1927 (NADCON CONUS)
New Mexico East 3001
487,686.39 N
586,851.50 E

Ground Level: 3,069.00 usft

Local Coordinate Origin:

Centered on Well Hades 2 SB State Com 3H

Viewing Datum:

RKB (Precision 601) 25' + GL(3069') @ 3094.00usft

TVDs to System:

N

North Reference:

Grid

Unit System:

Midcon (2 decimal)

Version: 5000.15 Build: 91

Report Version: Midcon Combo v1.14

HALLIBURTON

Plan Report for Hades 2 SB State Com 3H - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
0.00	0.00	0.00	0.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
602.00	0.00	0.00	602.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	Salado
700.00	0.00	0.00	700.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,148.00	0.00	0.00	1,148.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	Castile
1,200.00	0.00	0.00	1,200.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,400.00	0.00	0.00	1,400.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00 N	0.00 E	487,686.39	586,851.50	0.00	0.00	0.00	Build 1°/100'
2,100.00	1.00	5.34	2,099.99	0.87 N	0.08 E	487,687.26	586,851.58	1.00	-0.87	5.34	
2,200.00	2.00	5.34	2,199.96	3.48 N	0.32 E	487,689.87	586,851.82	1.00	-3.47	0.00	
2,300.00	3.00	5.34	2,299.86	7.82 N	0.73 E	487,694.21	586,852.23	1.00	-7.82	0.00	Hold 3°
2,400.00	3.00	5.34	2,399.73	13.03 N	1.22 E	487,699.42	586,852.72	0.00	-13.03	0.00	
2,500.00	3.00	5.34	2,499.59	18.24 N	1.70 E	487,704.63	586,853.20	0.00	-18.24	0.00	
2,543.47	3.00	5.34	2,543.00	20.51 N	1.92 E	487,706.90	586,853.42	0.00	-20.50	0.00	Base of Salt
2,600.00	3.00	5.34	2,599.45	23.45 N	2.19 E	487,709.84	586,853.69	0.00	-23.45	0.00	
2,700.00	3.00	5.34	2,699.31	28.66 N	2.68 E	487,715.05	586,854.18	0.00	-28.66	0.00	
2,750.75	3.00	5.34	2,750.00	31.31 N	2.93 E	487,717.70	586,854.43	0.00	-31.30	0.00	9 5/8"
2,779.79	3.00	5.34	2,779.00	32.82 N	3.07 E	487,719.21	586,854.57	0.00	-32.82	0.00	Lamar
2,800.00	3.00	5.34	2,799.18	33.87 N	3.17 E	487,720.26	586,854.67	0.00	-33.87	0.00	
2,807.83	3.00	5.34	2,807.00	34.28 N	3.20 E	487,720.67	586,854.70	0.00	-34.28	0.00	Bell Canyon
2,900.00	3.00	5.34	2,899.04	39.08 N	3.65 E	487,725.47	586,855.15	0.00	-39.08	0.00	

Plan Report for Hades 2 SB State Com 3H - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
3,000.00	3.00	5.34	2,998.90	44.29 N	4.14 E	487,730.68	586,855.64	0.00	-44.29	0.00	Build 2°/100'
3,050.00	4.00	5.34	3,048.81	47.33 N	4.42 E	487,733.72	586,855.92	2.00	-47.33	0.00	Hold 4°
3,100.00	4.00	5.34	3,098.69	50.81 N	4.75 E	487,737.20	586,856.25	0.00	-50.80	0.00	
3,200.00	4.00	5.34	3,198.44	57.75 N	5.40 E	487,744.14	586,856.90	0.00	-57.74	0.00	
3,300.00	4.00	5.34	3,298.20	64.70 N	6.05 E	487,751.09	586,857.55	0.00	-64.69	0.00	
3,400.00	4.00	5.34	3,397.96	71.64 N	6.70 E	487,758.03	586,858.20	0.00	-71.63	0.00	
3,500.00	4.00	5.34	3,497.71	78.59 N	7.35 E	487,764.98	586,858.85	0.00	-78.58	0.00	
3,600.00	4.00	5.34	3,597.47	85.53 N	7.99 E	487,771.92	586,859.49	0.00	-85.52	0.00	
3,664.69	4.00	5.34	3,662.00	90.03 N	8.41 E	487,776.42	586,859.91	0.00	-90.01	0.00	Cherry Canyon
3,700.00	4.00	5.34	3,697.23	92.48 N	8.64 E	487,778.87	586,860.14	0.00	-92.47	0.00	
3,800.00	4.00	5.34	3,796.98	99.42 N	9.29 E	487,785.81	586,860.79	0.00	-99.41	0.00	
3,900.00	4.00	5.34	3,896.74	106.37 N	9.94 E	487,792.76	586,861.44	0.00	-106.36	0.00	
4,000.00	4.00	5.34	3,996.50	113.31 N	10.59 E	487,799.70	586,862.09	0.00	-113.30	0.00	Build 2°/100'
4,050.00	5.00	5.34	4,046.34	117.22 N	10.96 E	487,803.61	586,862.46	2.00	-117.21	0.00	Hold 5°
4,100.00	5.00	5.34	4,096.15	121.56 N	11.36 E	487,807.95	586,862.86	0.00	-121.54	0.00	
4,200.00	5.00	5.34	4,195.77	130.24 N	12.17 E	487,816.63	586,863.67	0.00	-130.22	0.00	
4,300.00	5.00	5.34	4,295.39	138.91 N	12.98 E	487,825.30	586,864.48	0.00	-138.90	0.00	
4,400.00	5.00	5.34	4,395.01	147.59 N	13.80 E	487,833.98	586,865.30	0.00	-147.57	0.00	
4,500.00	5.00	5.34	4,494.63	156.27 N	14.61 E	487,842.66	586,866.11	0.00	-156.25	0.00	
4,600.00	5.00	5.34	4,594.25	164.95 N	15.42 E	487,851.34	586,866.92	0.00	-164.93	0.00	
4,700.00	5.00	5.34	4,693.87	173.63 N	16.23 E	487,860.02	586,867.73	0.00	-173.60	0.00	
4,800.00	5.00	5.34	4,793.49	182.30 N	17.04 E	487,868.69	586,868.54	0.00	-182.28	0.00	
4,900.00	5.00	5.34	4,893.11	190.98 N	17.85 E	487,877.37	586,869.35	0.00	-190.96	0.00	
4,903.91	5.00	5.34	4,897.00	191.32 N	17.88 E	487,877.71	586,869.38	0.00	-191.30	0.00	Brushy Canyon
5,000.00	5.00	5.34	4,992.73	199.66 N	18.66 E	487,886.05	586,870.16	0.00	-199.63	0.00	
5,100.00	5.00	5.34	5,092.35	208.34 N	19.47 E	487,894.73	586,870.97	0.00	-208.31	0.00	
5,200.00	5.00	5.34	5,191.96	217.01 N	20.28 E	487,903.40	586,871.78	0.00	-216.99	0.00	
5,300.00	5.00	5.34	5,291.58	225.69 N	21.10 E	487,912.08	586,872.60	0.00	-225.66	0.00	
5,400.00	5.00	5.34	5,391.20	234.37 N	21.91 E	487,920.76	586,873.41	0.00	-234.34	0.00	
5,500.00	5.00	5.34	5,490.82	243.05 N	22.72 E	487,929.44	586,874.22	0.00	-243.02	0.00	
5,600.00	5.00	5.34	5,590.44	251.73 N	23.53 E	487,938.12	586,875.03	0.00	-251.69	0.00	
5,700.00	5.00	5.34	5,690.06	260.40 N	24.34 E	487,946.79	586,875.84	0.00	-260.37	0.00	
5,800.00	5.00	5.34	5,789.68	269.08 N	25.15 E	487,955.47	586,876.65	0.00	-269.05	0.00	
5,900.00	5.00	5.34	5,889.30	277.76 N	25.96 E	487,964.15	586,877.46	0.00	-277.72	0.00	
6,000.00	5.00	5.34	5,988.92	286.44 N	26.77 E	487,972.83	586,878.27	0.00	-286.40	0.00	
6,100.00	5.00	5.34	6,088.54	295.11 N	27.58 E	487,981.50	586,879.08	0.00	-295.08	0.00	
6,200.00	5.00	5.34	6,188.16	303.79 N	28.40 E	487,990.18	586,879.90	0.00	-303.75	0.00	

Plan Report for Hades 2 SB State Com 3H - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
6,300.00	5.00	5.34	6,287.78	312.47 N	29.21 E	487,998.86	586,880.71	0.00	-312.43	0.00	
6,371.49	5.00	5.34	6,359.00	318.67 N	29.79 E	488,005.06	586,881.29	0.00	-318.63	0.00	Bone Spring
6,400.00	5.00	5.34	6,387.40	321.15 N	30.02 E	488,007.54	586,881.52	0.00	-321.11	0.00	
6,500.00	5.00	5.34	6,487.02	329.83 N	30.83 E	488,016.22	586,882.33	0.00	-329.78	0.00	
6,600.00	5.00	5.34	6,586.64	338.50 N	31.64 E	488,024.89	586,883.14	0.00	-338.46	0.00	
6,700.00	5.00	5.34	6,686.26	347.18 N	32.45 E	488,033.57	586,883.95	0.00	-347.14	0.00	
6,800.00	5.00	5.34	6,785.88	355.86 N	33.26 E	488,042.25	586,884.76	0.00	-355.81	0.00	
6,900.00	5.00	5.34	6,885.50	364.54 N	34.07 E	488,050.93	586,885.57	0.00	-364.49	0.00	
6,989.85	5.00	5.34	6,975.00	372.33 N	34.80 E	488,058.72	586,886.30	0.00	-372.29	0.00	Lower Avalon Shale
7,000.00	5.00	5.34	6,985.12	373.21 N	34.88 E	488,059.60	586,886.38	0.00	-373.17	0.00	
7,100.00	5.00	5.34	7,084.73	381.89 N	35.70 E	488,068.28	586,887.20	0.00	-381.84	0.00	
7,200.00	5.00	5.34	7,184.35	390.57 N	36.51 E	488,076.96	586,888.01	0.00	-390.52	0.00	
7,300.00	5.00	5.34	7,283.97	399.25 N	37.32 E	488,085.64	586,888.82	0.00	-399.20	0.00	
7,368.29	5.00	5.34	7,352.00	405.17 N	37.87 E	488,091.56	586,889.37	0.00	-405.12	0.00	1st Bone Spring Sand
7,400.00	5.00	5.34	7,383.59	407.92 N	38.13 E	488,094.31	586,889.63	0.00	-407.87	0.00	
7,425.00	5.00	5.34	7,408.50	410.09 N	38.33 E	488,096.48	586,889.83	0.00	-410.04	0.00	Drop 2°/100'
7,500.00	3.50	5.34	7,483.29	415.63 N	38.85 E	488,102.02	586,890.35	2.00	-415.58	180.00	
7,600.00	1.50	5.34	7,583.19	419.97 N	39.26 E	488,106.36	586,890.76	2.00	-419.92	180.00	
7,622.82	1.04	5.34	7,606.00	420.48 N	39.30 E	488,106.87	586,890.80	2.00	-420.42	180.00	Base 1st Bone Spring Sand
7,675.00	0.00	0.00	7,658.18	420.95 N	39.35 E	488,107.34	586,890.85	2.00	-420.90	-180.00	Vertical
7,700.00	0.00	0.00	7,683.18	420.95 N	39.35 E	488,107.34	586,890.85	0.00	-420.90	0.00	
7,800.00	0.00	0.00	7,783.18	420.95 N	39.35 E	488,107.34	586,890.85	0.00	-420.90	0.00	
7,900.00	0.00	0.00	7,883.18	420.95 N	39.35 E	488,107.34	586,890.85	0.00	-420.90	0.00	
7,969.36	0.00	0.00	7,952.54	420.95 N	39.35 E	488,107.34	586,890.85	0.00	-420.90	0.00	KOP/Build 12°/100'
7,975.00	0.68	180.37	7,958.18	420.92 N	39.35 E	488,107.31	586,890.85	12.00	-420.86	180.37	
8,000.00	3.68	180.37	7,983.16	419.97 N	39.34 E	488,106.36	586,890.84	12.00	-419.91	0.00	
8,025.00	6.68	180.37	8,008.05	417.71 N	39.33 E	488,104.10	586,890.83	12.00	-417.66	0.00	
8,050.00	9.68	180.37	8,032.80	414.15 N	39.30 E	488,100.54	586,890.80	12.00	-414.10	0.00	
8,075.00	12.68	180.37	8,057.32	409.31 N	39.27 E	488,095.70	586,890.77	12.00	-409.26	0.00	
8,100.00	15.68	180.37	8,081.56	403.19 N	39.23 E	488,089.58	586,890.73	12.00	-403.13	0.00	
8,121.37	18.24	180.37	8,102.00	396.95 N	39.19 E	488,083.34	586,890.69	12.00	-396.90	0.00	2nd Bone Spring Sand
8,125.00	18.68	180.37	8,105.44	395.81 N	39.18 E	488,082.20	586,890.68	12.00	-395.75	0.00	
8,150.00	21.68	180.37	8,128.90	387.18 N	39.13 E	488,073.57	586,890.63	12.00	-387.13	0.00	
8,175.00	24.68	180.37	8,151.88	377.35 N	39.07 E	488,063.74	586,890.57	12.00	-377.29	0.00	
8,200.00	27.68	180.37	8,174.32	366.32 N	38.99 E	488,052.71	586,890.49	12.00	-366.27	0.00	
8,225.00	30.68	180.37	8,196.14	354.13 N	38.92 E	488,040.52	586,890.42	12.00	-354.08	0.00	
8,250.00	33.68	180.37	8,217.30	340.82 N	38.83 E	488,027.21	586,890.33	12.00	-340.77	0.00	

Plan Report for Hades 2 SB State Com 3H - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
8,275.00	36.68	180.37	8,237.73	326.42 N	38.74 E	488,012.81	586,890.24	12.00	-326.37	0.00	
8,300.00	39.68	180.37	8,257.38	310.97 N	38.64 E	487,997.36	586,890.14	12.00	-310.92	0.00	
8,325.00	42.68	180.37	8,276.20	294.51 N	38.53 E	487,980.90	586,890.03	12.00	-294.46	0.00	
8,350.00	45.68	180.37	8,294.12	277.09 N	38.42 E	487,963.48	586,889.92	12.00	-277.04	0.00	
8,375.00	48.68	180.37	8,311.12	258.76 N	38.30 E	487,945.15	586,889.80	12.00	-258.71	0.00	
8,400.00	51.68	180.37	8,327.12	239.56 N	38.18 E	487,925.95	586,889.68	12.00	-239.51	0.00	
8,425.00	54.68	180.37	8,342.11	219.55 N	38.05 E	487,905.94	586,889.55	12.00	-219.50	0.00	
8,450.00	57.68	180.37	8,356.02	198.79 N	37.91 E	487,885.18	586,889.41	12.00	-198.73	0.00	
8,475.00	60.68	180.37	8,368.83	177.32 N	37.77 E	487,863.71	586,889.27	12.00	-177.27	0.00	
8,500.00	63.68	180.37	8,380.50	155.21 N	37.63 E	487,841.60	586,889.13	12.00	-155.16	0.00	
8,525.00	66.68	180.37	8,390.99	132.53 N	37.48 E	487,818.92	586,888.98	12.00	-132.48	0.00	
8,550.00	69.68	180.37	8,400.28	109.32 N	37.33 E	487,795.71	586,888.83	12.00	-109.27	0.00	
8,564.15	71.38	180.37	8,405.00	95.98 N	37.25 E	487,782.37	586,888.75	12.00	-95.93	0.00	2nd Bone Spring THL
8,575.00	72.68	180.37	8,408.35	85.66 N	37.18 E	487,772.05	586,888.68	12.00	-85.61	0.00	
8,600.00	75.68	180.37	8,415.16	61.61 N	37.03 E	487,748.00	586,888.53	12.00	-61.56	0.00	
8,625.00	78.68	180.37	8,420.71	37.24 N	36.87 E	487,723.63	586,888.37	12.00	-37.19	0.00	
8,650.00	81.68	180.37	8,424.98	12.61 N	36.71 E	487,699.00	586,888.21	12.00	-12.56	0.00	
8,675.00	84.68	180.37	8,427.95	12.21 S	36.55 E	487,674.18	586,888.05	12.00	12.26	0.00	
8,700.00	87.68	180.37	8,429.61	37.15 S	36.39 E	487,649.24	586,887.89	12.00	37.20	0.00	
8,717.21	89.74	180.37	8,430.00	54.36 S	36.28 E	487,632.03	586,887.78	12.00	54.41	0.00	2nd Bone Spring TRGT
8,719.36	90.00	180.37	8,430.00	56.51 S	36.26 E	487,629.88	586,887.76	12.00	56.55	0.00	Landing
8,800.00	90.00	180.37	8,430.00	137.15 S	35.74 E	487,549.24	586,887.24	0.00	137.19	0.00	
8,900.00	90.00	180.37	8,430.00	237.14 S	35.10 E	487,449.25	586,886.60	0.00	237.19	0.00	
9,000.00	90.00	180.37	8,430.00	337.14 S	34.45 E	487,349.25	586,885.95	0.00	337.19	0.00	
9,100.00	90.00	180.37	8,430.00	437.14 S	33.81 E	487,249.25	586,885.31	0.00	437.18	0.00	
9,200.00	90.00	180.37	8,430.00	537.14 S	33.16 E	487,149.25	586,884.66	0.00	537.18	0.00	
9,300.00	90.00	180.37	8,430.00	637.14 S	32.51 E	487,049.25	586,884.01	0.00	637.18	0.00	
9,400.00	90.00	180.37	8,430.00	737.13 S	31.87 E	486,949.26	586,883.37	0.00	737.17	0.00	
9,500.00	90.00	180.37	8,430.00	837.13 S	31.22 E	486,849.26	586,882.72	0.00	837.17	0.00	
9,600.00	90.00	180.37	8,430.00	937.13 S	30.58 E	486,749.26	586,882.08	0.00	937.17	0.00	
9,700.00	90.00	180.37	8,430.00	1,037.13 S	29.93 E	486,649.26	586,881.43	0.00	1,037.17	0.00	
9,800.00	90.00	180.37	8,430.00	1,137.12 S	29.28 E	486,549.27	586,880.78	0.00	1,137.16	0.00	
9,900.00	90.00	180.37	8,430.00	1,237.12 S	28.64 E	486,449.27	586,880.14	0.00	1,237.16	0.00	
10,000.00	90.00	180.37	8,430.00	1,337.12 S	27.99 E	486,349.27	586,879.49	0.00	1,337.16	0.00	
10,100.00	90.00	180.37	8,430.00	1,437.12 S	27.35 E	486,249.27	586,878.85	0.00	1,437.15	0.00	
10,200.00	90.00	180.37	8,430.00	1,537.12 S	26.70 E	486,149.27	586,878.20	0.00	1,537.15	0.00	

Plan Report for Hades 2 SB State Com 3H - Plan 2

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
10,300.00	90.00	180.37	8,430.00	1,637.11 S	26.06 E	486,049.28	586,877.56	0.00	1,637.15	0.00	
10,400.00	90.00	180.37	8,430.00	1,737.11 S	25.41 E	485,949.28	586,876.91	0.00	1,737.14	0.00	
10,500.00	90.00	180.37	8,430.00	1,837.11 S	24.76 E	485,849.28	586,876.26	0.00	1,837.14	0.00	
10,600.00	90.00	180.37	8,430.00	1,937.11 S	24.12 E	485,749.28	586,875.62	0.00	1,937.14	0.00	
10,700.00	90.00	180.37	8,430.00	2,037.11 S	23.47 E	485,649.28	586,874.97	0.00	2,037.14	0.00	
10,800.00	90.00	180.37	8,430.00	2,137.10 S	22.83 E	485,549.29	586,874.33	0.00	2,137.13	0.00	
10,900.00	90.00	180.37	8,430.00	2,237.10 S	22.18 E	485,449.29	586,873.68	0.00	2,237.13	0.00	
11,000.00	90.00	180.37	8,430.00	2,337.10 S	21.54 E	485,349.29	586,873.04	0.00	2,337.13	0.00	
11,100.00	90.00	180.37	8,430.00	2,437.10 S	20.89 E	485,249.29	586,872.39	0.00	2,437.12	0.00	
11,200.00	90.00	180.37	8,430.00	2,537.10 S	20.24 E	485,149.29	586,871.74	0.00	2,537.12	0.00	
11,300.00	90.00	180.37	8,430.00	2,637.09 S	19.60 E	485,049.30	586,871.10	0.00	2,637.12	0.00	
11,400.00	90.00	180.37	8,430.00	2,737.09 S	18.95 E	484,949.30	586,870.45	0.00	2,737.11	0.00	
11,500.00	90.00	180.37	8,430.00	2,837.09 S	18.31 E	484,849.30	586,869.81	0.00	2,837.11	0.00	
11,600.00	90.00	180.37	8,430.00	2,937.09 S	17.66 E	484,749.30	586,869.16	0.00	2,937.11	0.00	
11,700.00	90.00	180.37	8,430.00	3,037.09 S	17.02 E	484,649.30	586,868.52	0.00	3,037.10	0.00	
11,800.00	90.00	180.37	8,430.00	3,137.08 S	16.37 E	484,549.31	586,867.87	0.00	3,137.10	0.00	
11,900.00	90.00	180.37	8,430.00	3,237.08 S	15.72 E	484,449.31	586,867.22	0.00	3,237.10	0.00	
12,000.00	90.00	180.37	8,430.00	3,337.08 S	15.08 E	484,349.31	586,866.58	0.00	3,337.10	0.00	
12,100.00	90.00	180.37	8,430.00	3,437.08 S	14.43 E	484,249.31	586,865.93	0.00	3,437.09	0.00	
12,200.00	90.00	180.37	8,430.00	3,537.07 S	13.79 E	484,149.32	586,865.29	0.00	3,537.09	0.00	
12,300.00	90.00	180.37	8,430.00	3,637.07 S	13.14 E	484,049.32	586,864.64	0.00	3,637.09	0.00	
12,400.00	90.00	180.37	8,430.00	3,737.07 S	12.49 E	483,949.32	586,863.99	0.00	3,737.08	0.00	
12,500.00	90.00	180.37	8,430.00	3,837.07 S	11.85 E	483,849.32	586,863.35	0.00	3,837.08	0.00	
12,600.00	90.00	180.37	8,430.00	3,937.07 S	11.20 E	483,749.32	586,862.70	0.00	3,937.08	0.00	
12,700.00	90.00	180.37	8,430.00	4,037.06 S	10.56 E	483,649.33	586,862.06	0.00	4,037.07	0.00	
12,800.00	90.00	180.37	8,430.00	4,137.06 S	9.91 E	483,549.33	586,861.41	0.00	4,137.07	0.00	
12,900.00	90.00	180.37	8,430.00	4,237.06 S	9.27 E	483,449.33	586,860.77	0.00	4,237.07	0.00	
13,000.00	90.00	180.37	8,430.00	4,337.06 S	8.62 E	483,349.33	586,860.12	0.00	4,337.07	0.00	
13,100.00	90.00	180.37	8,430.00	4,437.06 S	7.97 E	483,249.33	586,859.47	0.00	4,437.06	0.00	
13,200.00	90.00	180.37	8,430.00	4,537.05 S	7.33 E	483,149.34	586,858.83	0.00	4,537.06	0.00	
13,300.00	90.00	180.37	8,430.00	4,637.05 S	6.68 E	483,049.34	586,858.18	0.00	4,637.06	0.00	
13,385.68	90.00	180.37	8,430.00	4,722.73 S	6.13 E	482,963.66	586,857.63	0.00	4,722.73	0.00	TD at 13385.68 - 5 1/2"

Plan Report for Hades 2 SB State Com 3H - Plan 2

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	Build 1°/100'
2,300.00	2,299.86	7.82	0.73	Hold 3°
3,000.00	2,998.90	44.29	4.14	Build 2°/100'
3,050.00	3,048.81	47.33	4.42	Hold 4°
4,000.00	3,996.50	113.31	10.59	Build 2°/100'
4,050.00	4,046.34	117.22	10.96	Hold 5°
7,425.00	7,408.50	410.09	38.33	Drop 2°/100'
7,675.00	7,658.18	420.95	39.35	Vertical
7,969.36	7,952.54	420.95	39.35	KOP/Build 12°/100'
8,719.36	8,430.00	-56.51	36.26	Landing
13,385.68	8,430.00	-4,722.73	6.28	TD at 13385.68

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
TD	No Target (Freehand)	179.92	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	13,385.14	Plan 2	3_MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,750.75	2,750.00	9 5/8"	9-5/8	12-1/4
13,385.68	8,430.00	5 1/2"	5-1/2	8-3/4

Plan Report for Hades 2 SB State Com 3H - Plan 2

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	TVDSS (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
602.00	602.00	-2,492.00	Salado			
1,148.00	1,148.00	-1,946.00	Castile			
2,543.47	2,543.00	-551.00	Base of Salt			
2,779.79	2,779.00	-315.00	Lamar			
2,807.83	2,807.00	-287.00	Bell Canyon			
3,664.69	3,662.00	568.00	Cherry Canyon			
4,903.91	4,897.00	1,803.00	Brushy Canyon			
6,371.49	6,359.00	3,265.00	Bone Spring			
6,989.85	6,975.00	3,881.00	Lower Avalon Shale			
7,368.29	7,352.00	4,258.00	1st Bone Spring Sand			
7,622.82	7,606.00	4,512.00	Base 1st Bone Spring Sand			
8,121.37	8,102.00	5,008.00	2nd Bone Spring Sand			
8,564.15	8,405.00	5,311.00	2nd Bone Spring THL			
8,717.21	8,430.00	5,336.00	2nd Bone Spring TRGT			

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									
3H KOP/FTP (100' FNL - 2310' FEL) ()									
	0.00	0.00	8,386.00	420.98	39.26	488,107.37	586,890.76	32.34160921	-104.05198817
- plan misses target center by 167.47usft at 8324.38usft MD (8275.74 TVD, 294.93 N, 38.53 E)									
- Point									

3H LTP/BHL (100' FSL - 2310' FEL) ()									
	0.00	0.00	8,386.00	-4,722.73	6.28	482,963.66	586,857.78	32.32746983	-104.05213867
- plan misses target center by 44.01usft at 13385.68usft MD (8430.00 TVD, -4722.73 N, 6.13 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	0.75 °/100usft	Maximum Dogleg over Survey:	12.00 °/100usft at 8,719.36 usft
Net Tortousity applicable to Plans:	0.75 °/100usft	Directional Difficulty Index:	6.150

Plan Report for Hades 2 SB State Com 3H - Plan 2

Audit Info

North Reference Sheet for Hades 2 SB State Com Pad (Grid) - Hades 2 SB State Com 3H - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to RKB (Precision 601) 25' + GL(3069') @ 3094.00usft. Northing and Easting are relative to Hades 2 SB State Com 3H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 3001 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866
Projection method is Transverse Mercator (Gauss-Kruger)
Central Meridian is -104.3333333°, Longitude Origin:0.00000000°, Latitude Origin:0.00000000°
False Easting: 500,000.00usft, False Northing: 0.00usft, Scale Reduction: 0.99991773

Grid Coordinates of Well: 487,686.39 usft N, 586,851.50 usft E
Geographical Coordinates of Well: 32.34045225, -104.05211887
Grid Convergence at Surface is: 0.15°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,385.68usft
the Bottom Hole Displacement is 4,722.73usft in the Direction of 179.93° (Grid).
Magnetic Convergence at surface is: -6.93° (18 October 2019, , HDGM_2019)

