

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

State of New Mexico
Energy, Minerals & Natural Resources

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

Form C-104
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address COG Operating LLC 2208 W. Main Street Artesia, NM 88210		² O GRID Number 229137	
		³ Reason for Filing Code/ Effective Date RT	
API Number 30-025-42813	⁵ Pool Name Brinninstool; Bone Spring		⁶ Pool Code 7320 KZ
⁷ Property Code 39454	⁸ Property Name Sopapilla State		⁹ Well Number 5H

II. ¹⁰ Surface Location

Ul or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
4	2	23S	33E		190	North	1100	West	Lea

¹¹ Bottom Hole Location

Ul or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
M	2	23S	33E		51	South	996	West	Lea
¹² Lse Code S	¹³ Producing Method Code	¹⁴ Gas Connection Date	¹⁵ C -129 Permit Number	¹⁶ C -129 Effective Date	¹⁷ C -129 Expiration Date				

III. Oil and Gas Transporters

¹⁸ Transporter O GRID	¹⁹ Transporter Name and Address	²⁰ O/G/W
34053	Plains Marketing	O
24650	Targa Midstream Services, LP 1000 Louisiana Ste 4700 Houston, TX 77002	G
278421	Holly Refining and Marketing PO Box 159 Artesia, NM 88210	O

IV. Well Completion Data

²¹ Spud Date 8/31/19	²² Ready Date 04/22/20	²³ TD 14,451'	²⁴ PBTD 14,380'	²⁵ Perforations 9,710-14,262'	²⁶ DHC, MC
²⁷ Hole Size	²⁸ Casing & Tubing Size	²⁹ Depth Set	³⁰ Sacks Cement		
17 1/2"	13 5/8"	1091'	1050		
12 1/4"	9 5/8"	5165'	1850		
8 3/4"	5 1/2"	14436'	2400		
	2 7/8"	8,917'			

V. Well Test Data

³¹ Date New Oil	³² Gas Delivery Date	³³ Test Date	³⁴ Test Length	³⁵ Tbg. Pressure	³⁶ Csg. Pressure
³⁷ Choke Size	³⁸ Oil	³⁹ Water	⁴⁰ Gas		⁴¹ Test Method

⁴² I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief. Signature: Printed name: Amanda Avery Title: Regulatory Analyst E-mail Address: aavery@concho.com Date: 6/2/2020		OIL CONSERVATION DIVISION	
		Approved by: Patricia Martinez	
		Title: LM II	
		Approval Date: 6/26/2020	
		RT EXPIRES 7/22/2020	

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

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		WELL API NO. 30-025-42813
2. Name of Operator COG Operating LLC		5. Indicate Type of Lease STATE ☒ FEE ☐
3. Address of Operator 2208 W. Main Street, Artesia, NM 88210		6. State Oil & Gas Lease No.
4. Well Location Unit Letter <u>4</u> : <u>190</u> feet from the <u>North</u> line and <u>1100</u> feet from the <u>West</u> line Section <u>2</u> Township <u>23S</u> Range <u>33E</u> NMPM <u>Lea</u> County		7. Lease Name or Unit Agreement Name Sopapilla ST
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3543' GR		8. Well Number 5H
		9. OGRID Number 229137
		10. Pool name or Wildcat Brinninstool; Bone Spring

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: Completion Operations ☒	

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.

12/17/20 Test 7 5/8" x 5 1/2" annulus to 1500# for 30 mins. Good test. Set Composite Bridge Plug @ 14,380'. Test to 8515#.

4/4/20 to 4/8/20 Perf 9,710 – 14,262' (644). Ac dz w/ 72,572 gal 7-1/2%; frac w/ 9,259,049# sand & 9,283,327 gal fluid.

4/20/20 to 4/21/20 Drill out CFP's. Clean down to PBTD @ 14,380'.

4/22/20 to 4/23/20 Set 2 7/8" 6.5# L-80 tbg @ 8,917' & pkr @ 8,907'.

Spud Date:

8/31/19

Rig Release Date:

9/30/19

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

SIGNATURE Amanda Avery TITLE: Regulatory Analyst DATE: 6/2/2020

Type or print name: Amanda Avery E-mail address: aavery@concho.com PHONE: (575) 748-6962

For State Use Only

APPROVED BY: _____ TITLE _____ DATE _____

Conditions of Approval (if any):

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
511 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) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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

☒ AMENDED REPORT
As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-42813	Pool Code 7320	Pool Name Brinninstool; Bone Spring <i>KZ</i>
Property Code 39454	Property Name SOPAPILLA STATE	Well Number 5H
OGRID No. 229137	Operator Name COG PRODUCTION, LLC	Elevation 3543.1'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	2	23-S	33-E		190	NORTH	1100	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	2	23-S	33-E		51	SOUTH	996	WEST	LEA
Dedicated Acres 159.51	Joint or Infill	Consolidation Code	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

	OPERATOR CERTIFICATION <i>I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i> 4/29/20 Date Signature Amanda Avery Printed Name aavery@concho.com E-mail Address
	SURVEYOR CERTIFICATION <i>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.</i> JULY 30, 2019/NOV. 1, 2019 Date of Survey/Date of Geographic Survey Signature & Seal of Professional Surveyor <i>Chad Harcrow</i> 4/21/20 Certificate No. CHAD HARCROW 17777 W.O. #20-599 DRAWN BY: WN

Intent ☐ As Drilled ☐

API # 30-025-42813								
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? ☐ No

Is this well an infill well? ☐ Yes

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

API # 30-025-40733								
Operator Name: COG Operating LLC			Property Name: Sopapilla State			Well Number 1H		

NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

SOPAPILLA STATE #5H

30-025-42813

OWB

Design: OWB

Standard Survey Report

01 November, 2019

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

Project	LEA COUNTY, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	BULLDOG		
Site Position:		Northing:	398,637.10 usft
From:	Map	Easting:	741,887.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 5' 36.820 N
		Longitude:	103° 33' 8.116 W
		Grid Convergence:	0.42 °

Well	SOPAPILLA STATE #5H, DB-ACTIVE		
Well Position	+N/-S	0.0 usft	Northing: 488,418.40 usft
	+E/-W	0.0 usft	Easting: 742,654.30 usft
Position Uncertainty	3.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 20' 25.193 N
		Longitude:	103° 32' 51.572 W
		Ground Level:	3,543.1 usft

Wellbore	OWB		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	9/3/2019	6.71
			Dip Angle (°) 60.14
			Field Strength (nT) 47,780.78132374

Design	OWB		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°) 180.70

Survey Program	Date	10/9/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,638.1	GYRO (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
8,769.0	14,451.0	MWD-CURVE/LAT (OWB)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR Correction

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	0.55	114.04	100.0	-0.2	0.4	0.2	0.55	0.55	0.00
125.0	0.57	113.60	125.0	-0.3	0.7	0.3	0.08	0.08	-1.76
150.0	0.56	112.96	150.0	-0.4	0.9	0.4	0.05	-0.04	-2.56
175.0	0.52	113.27	175.0	-0.5	1.1	0.5	0.16	-0.16	1.24
200.0	0.64	112.18	200.0	-0.6	1.3	0.6	0.48	0.48	-4.36
225.0	0.72	113.34	225.0	-0.7	1.6	0.7	0.32	0.32	4.64
250.0	0.81	109.18	250.0	-0.8	1.9	0.8	0.42	0.36	-16.64
275.0	0.73	111.35	275.0	-0.9	2.2	0.9	0.34	-0.32	8.68
300.0	0.75	114.77	300.0	-1.1	2.5	1.0	0.19	0.08	13.68

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)
325.0	0.74	113.93	325.0	-1.2	2.8	1.2	0.06	-0.04	-3.36
350.0	0.75	115.94	350.0	-1.3	3.1	1.3	0.11	0.04	8.04
375.0	0.75	115.99	375.0	-1.5	3.4	1.4	0.00	0.00	0.20
400.0	0.75	115.90	400.0	-1.6	3.7	1.6	0.00	0.00	-0.36
425.0	0.66	117.97	425.0	-1.8	4.0	1.7	0.37	-0.36	8.28
450.0	0.75	108.79	450.0	-1.9	4.3	1.8	0.58	0.36	-36.72
475.0	0.68	105.58	475.0	-2.0	4.6	1.9	0.32	-0.28	-12.84
500.0	0.74	100.17	500.0	-2.0	4.9	2.0	0.36	0.24	-21.64
525.0	0.70	93.91	525.0	-2.1	5.2	2.0	0.35	-0.16	-25.04
550.0	0.73	95.95	550.0	-2.1	5.5	2.0	0.16	0.12	8.16
575.0	0.74	95.20	575.0	-2.1	5.8	2.1	0.06	0.04	-3.00
600.0	0.76	94.95	600.0	-2.2	6.1	2.1	0.08	0.08	-1.00
625.0	0.75	94.33	625.0	-2.2	6.5	2.1	0.05	-0.04	-2.48
650.0	0.68	90.28	650.0	-2.2	6.8	2.1	0.35	-0.28	-16.20
675.0	0.69	91.10	675.0	-2.2	7.1	2.1	0.06	0.04	3.28
700.0	0.73	93.90	700.0	-2.2	7.4	2.1	0.21	0.16	11.20
725.0	0.75	92.24	725.0	-2.2	7.7	2.1	0.12	0.08	-6.64
750.0	0.77	91.57	749.9	-2.2	8.0	2.1	0.09	0.08	-2.68
775.0	0.75	92.21	774.9	-2.3	8.4	2.2	0.09	-0.08	2.56
800.0	0.79	91.53	799.9	-2.3	8.7	2.2	0.16	0.16	-2.72
825.0	0.79	91.99	824.9	-2.3	9.1	2.2	0.03	0.00	1.84
850.0	0.79	94.93	849.9	-2.3	9.4	2.2	0.16	0.00	11.76
875.0	0.82	93.69	874.9	-2.3	9.7	2.2	0.14	0.12	-4.96
900.0	0.85	88.99	899.9	-2.3	10.1	2.2	0.30	0.12	-18.80
925.0	0.91	87.96	924.9	-2.3	10.5	2.2	0.25	0.24	-4.12
950.0	0.91	89.32	949.9	-2.3	10.9	2.2	0.09	0.00	5.44
975.0	0.99	87.51	974.9	-2.3	11.3	2.2	0.34	0.32	-7.24
1,000.0	1.03	82.35	999.9	-2.3	11.7	2.1	0.40	0.16	-20.64
1,025.0	1.10	79.48	1,024.9	-2.2	12.2	2.0	0.35	0.28	-11.48
1,050.0	1.23	76.19	1,049.9	-2.1	12.7	1.9	0.58	0.52	-13.16
1,075.0	1.34	71.72	1,074.9	-1.9	13.2	1.8	0.59	0.44	-17.88
1,100.0	1.43	71.64	1,099.9	-1.7	13.8	1.6	0.36	0.36	-0.32
1,125.0	1.47	71.80	1,124.9	-1.5	14.4	1.4	0.16	0.16	0.64
1,150.0	1.50	71.69	1,149.9	-1.3	15.0	1.2	0.12	0.12	-0.44
1,175.0	1.50	71.60	1,174.9	-1.1	15.6	0.9	0.01	0.00	-0.36
1,200.0	1.48	69.36	1,199.9	-0.9	16.3	0.7	0.25	-0.08	-8.96
1,225.0	1.45	67.70	1,224.9	-0.7	16.9	0.5	0.21	-0.12	-6.64
1,250.0	1.42	67.89	1,249.8	-0.4	17.4	0.2	0.12	-0.12	0.76
1,275.0	1.42	67.98	1,274.8	-0.2	18.0	0.0	0.01	0.00	0.36
1,300.0	1.38	65.56	1,299.8	0.0	18.6	-0.3	0.29	-0.16	-9.68
1,325.0	1.43	65.17	1,324.8	0.3	19.1	-0.5	0.20	0.20	-1.56
1,350.0	1.45	59.47	1,349.8	0.6	19.7	-0.8	0.58	0.08	-22.80
1,375.0	1.50	34.28	1,374.8	1.0	20.1	-1.3	2.58	0.20	-100.76

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)	
1,400.0	1.69	17.42	1,399.8	1.6	20.4	-1.9	2.02	0.76	-67.44	
1,425.0	1.69	12.16	1,424.8	2.3	20.6	-2.6	0.62	0.00	-21.04	
1,450.0	1.71	7.59	1,449.8	3.1	20.7	-3.3	0.55	0.08	-18.28	
1,475.0	1.76	5.34	1,474.8	3.8	20.8	-4.1	0.34	0.20	-9.00	
1,500.0	1.72	4.82	1,499.8	4.6	20.9	-4.8	0.17	-0.16	-2.08	
1,525.0	1.39	358.76	1,524.7	5.3	20.9	-5.5	1.47	-1.32	-24.24	
1,550.0	0.80	338.26	1,549.7	5.7	20.9	-6.0	2.80	-2.36	-82.00	
1,575.0	0.61	294.48	1,574.7	5.9	20.7	-6.2	2.22	-0.76	-175.12	
1,600.0	0.75	272.98	1,599.7	6.0	20.4	-6.3	1.15	0.56	-86.00	
1,625.0	0.83	264.06	1,624.7	6.0	20.0	-6.2	0.59	0.32	-35.68	
1,650.0	0.89	260.31	1,649.7	5.9	19.7	-6.2	0.33	0.24	-15.00	
1,675.0	0.90	258.28	1,674.7	5.9	19.3	-6.1	0.13	0.04	-8.12	
1,700.0	0.93	258.24	1,699.7	5.8	18.9	-6.0	0.12	0.12	-0.16	
1,725.0	0.95	260.45	1,724.7	5.7	18.5	-5.9	0.17	0.08	8.84	
1,750.0	0.97	260.06	1,749.7	5.6	18.1	-5.9	0.08	0.08	-1.56	
1,775.0	0.97	258.50	1,774.7	5.6	17.7	-5.8	0.11	0.00	-6.24	
1,800.0	0.93	253.47	1,799.7	5.5	17.3	-5.7	0.37	-0.16	-20.12	
1,825.0	0.95	253.72	1,824.7	5.3	16.9	-5.6	0.08	0.08	1.00	
1,850.0	0.93	257.34	1,849.7	5.2	16.5	-5.4	0.25	-0.08	14.48	
1,875.0	0.93	254.89	1,874.7	5.1	16.1	-5.3	0.16	0.00	-9.80	
1,900.0	0.95	253.50	1,899.7	5.0	15.7	-5.2	0.12	0.08	-5.56	
1,925.0	0.95	251.42	1,924.7	4.9	15.3	-5.1	0.14	0.00	-8.32	
1,950.0	0.94	250.54	1,949.7	4.8	14.9	-5.0	0.07	-0.04	-3.52	
1,975.0	0.90	253.57	1,974.7	4.7	14.5	-4.8	0.25	-0.16	12.12	
2,000.0	0.88	252.50	1,999.7	4.5	14.1	-4.7	0.10	-0.08	-4.28	
2,025.0	0.84	251.77	2,024.7	4.4	13.8	-4.6	0.17	-0.16	-2.92	
2,050.0	0.80	253.84	2,049.7	4.3	13.4	-4.5	0.20	-0.16	8.28	
2,075.0	0.80	254.32	2,074.7	4.2	13.1	-4.4	0.03	0.00	1.92	
2,100.0	0.75	257.19	2,099.7	4.1	12.8	-4.3	0.25	-0.20	11.48	
2,125.0	0.69	260.09	2,124.7	4.1	12.5	-4.2	0.28	-0.24	11.60	
2,150.0	0.63	261.89	2,149.7	4.0	12.2	-4.2	0.25	-0.24	7.20	
2,175.0	0.53	268.30	2,174.7	4.0	11.9	-4.2	0.48	-0.40	25.64	
2,200.0	0.37	281.56	2,199.7	4.0	11.7	-4.2	0.76	-0.64	53.04	
2,225.0	0.25	308.60	2,224.7	4.1	11.6	-4.2	0.74	-0.48	108.16	
2,250.0	0.28	326.82	2,249.7	4.2	11.5	-4.3	0.36	0.12	72.88	
2,275.0	0.31	358.74	2,274.7	4.3	11.5	-4.4	0.66	0.12	127.68	
2,300.0	0.41	23.65	2,299.7	4.4	11.5	-4.6	0.73	0.40	99.64	
2,325.0	0.48	30.30	2,324.7	4.6	11.6	-4.7	0.35	0.28	26.60	
2,350.0	0.59	34.14	2,349.7	4.8	11.8	-4.9	0.46	0.44	15.36	
2,375.0	0.76	39.06	2,374.7	5.0	11.9	-5.2	0.72	0.68	19.68	
2,400.0	0.90	41.55	2,399.7	5.3	12.2	-5.5	0.58	0.56	9.96	
2,425.0	0.96	44.58	2,424.7	5.6	12.4	-5.8	0.31	0.24	12.12	
2,450.0	1.01	47.18	2,449.7	5.9	12.8	-6.1	0.27	0.20	10.40	

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)	
2,475.0	1.03	45.61	2,474.7	6.2	13.1	-6.4	0.14	0.08	-6.28	
2,500.0	1.03	31.74	2,499.6	6.6	13.4	-6.7	0.99	0.00	-55.48	
2,525.0	1.51	358.47	2,524.6	7.1	13.5	-7.2	3.44	1.92	-133.08	
2,550.0	2.30	341.84	2,549.6	7.9	13.3	-8.0	3.83	3.16	-66.52	
2,575.0	2.95	333.88	2,574.6	8.9	12.9	-9.1	2.97	2.60	-31.84	
2,600.0	3.76	329.61	2,599.6	10.2	12.2	-10.4	3.39	3.24	-17.08	
2,625.0	4.85	326.76	2,624.5	11.8	11.2	-11.9	4.44	4.36	-11.40	
2,650.0	5.90	325.64	2,649.4	13.8	9.9	-13.9	4.22	4.20	-4.48	
2,675.0	6.52	325.41	2,674.2	16.0	8.3	-16.1	2.48	2.48	-0.92	
2,700.0	6.66	325.62	2,699.1	18.4	6.7	-18.4	0.57	0.56	0.84	
2,725.0	6.70	325.51	2,723.9	20.7	5.1	-20.8	0.17	0.16	-0.44	
2,750.0	6.67	325.09	2,748.7	23.1	3.4	-23.2	0.23	-0.12	-1.68	
2,775.0	6.60	325.38	2,773.6	25.5	1.8	-25.5	0.31	-0.28	1.16	
2,800.0	5.72	324.33	2,798.4	27.7	0.2	-27.7	3.55	-3.52	-4.20	
2,825.0	4.58	321.93	2,823.3	29.5	-1.1	-29.5	4.64	-4.56	-9.60	
2,850.0	3.93	320.57	2,848.2	31.0	-2.3	-30.9	2.63	-2.60	-5.44	
2,875.0	3.66	320.66	2,873.2	32.2	-3.3	-32.2	1.08	-1.08	0.36	
2,900.0	3.59	320.67	2,898.1	33.5	-4.3	-33.4	0.28	-0.28	0.04	
2,925.0	3.55	321.45	2,923.1	34.7	-5.3	-34.6	0.25	-0.16	3.12	
2,950.0	3.60	323.37	2,948.0	35.9	-6.3	-35.8	0.52	0.20	7.68	
2,975.0	3.75	325.18	2,973.0	37.2	-7.2	-37.1	0.76	0.60	7.24	
3,000.0	3.83	327.34	2,997.9	38.6	-8.1	-38.5	0.65	0.32	8.64	
3,025.0	3.92	329.86	3,022.9	40.0	-9.0	-39.9	0.77	0.36	10.08	
3,050.0	4.00	331.26	3,047.8	41.5	-9.8	-41.4	0.50	0.32	5.60	
3,075.0	4.00	330.34	3,072.8	43.0	-10.7	-42.9	0.26	0.00	-3.68	
3,100.0	4.18	326.15	3,097.7	44.6	-11.6	-44.4	1.39	0.72	-16.76	
3,125.0	4.45	321.42	3,122.6	46.1	-12.7	-45.9	1.79	1.08	-18.92	
3,150.0	4.58	316.77	3,147.5	47.6	-14.0	-47.4	1.55	0.52	-18.60	
3,175.0	4.81	310.96	3,172.5	49.0	-15.5	-48.8	2.11	0.92	-23.24	
3,200.0	4.99	306.71	3,197.4	50.3	-17.2	-50.1	1.62	0.72	-17.00	
3,225.0	5.01	304.64	3,222.3	51.6	-18.9	-51.3	0.73	0.08	-8.28	
3,250.0	5.09	303.52	3,247.2	52.8	-20.8	-52.6	0.51	0.32	-4.48	
3,275.0	4.74	307.74	3,272.1	54.1	-22.5	-53.8	2.01	-1.40	16.88	
3,300.0	4.34	313.07	3,297.0	55.3	-24.0	-55.0	2.32	-1.60	21.32	
3,325.0	4.23	314.36	3,321.9	56.6	-25.4	-56.3	0.58	-0.44	5.16	
3,350.0	4.22	314.38	3,346.9	57.9	-26.7	-57.6	0.04	-0.04	0.08	
3,375.0	4.24	313.66	3,371.8	59.2	-28.0	-58.9	0.23	0.08	-2.88	
3,400.0	4.18	311.73	3,396.7	60.4	-29.4	-60.1	0.62	-0.24	-7.72	
3,425.0	4.16	308.94	3,421.7	61.6	-30.7	-61.2	0.82	-0.08	-11.16	
3,450.0	4.22	308.16	3,446.6	62.8	-32.2	-62.4	0.33	0.24	-3.12	
3,475.0	4.22	308.34	3,471.5	63.9	-33.6	-63.5	0.05	0.00	0.72	
3,500.0	4.24	308.49	3,496.5	65.0	-35.1	-64.6	0.09	0.08	0.60	
3,525.0	4.32	308.51	3,521.4	66.2	-36.5	-65.8	0.32	0.32	0.08	
3,550.0	4.37	310.25	3,546.3	67.4	-38.0	-66.9	0.56	0.20	6.96	

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)
3,575.0	4.44	315.14	3,571.3	68.7	-39.4	-68.2	1.53	0.28	19.56
3,600.0	4.53	320.24	3,596.2	70.2	-40.7	-69.6	1.63	0.36	20.40
3,625.0	4.52	324.38	3,621.1	71.7	-41.9	-71.2	1.31	-0.04	16.56
3,650.0	4.49	327.24	3,646.0	73.3	-43.0	-72.8	0.91	-0.12	11.44
3,675.0	4.49	328.18	3,670.9	75.0	-44.1	-74.4	0.29	0.00	3.76
3,700.0	4.49	329.10	3,695.9	76.7	-45.1	-76.1	0.29	0.00	3.68
3,725.0	4.38	330.35	3,720.8	78.3	-46.1	-77.8	0.59	-0.44	5.00
3,750.0	4.17	333.18	3,745.7	80.0	-46.9	-79.4	1.19	-0.84	11.32
3,775.0	4.01	338.56	3,770.7	81.6	-47.7	-81.0	1.66	-0.64	21.52
3,800.0	3.99	343.68	3,795.6	83.2	-48.2	-82.6	1.43	-0.08	20.48
3,825.0	3.97	345.29	3,820.5	84.9	-48.7	-84.3	0.45	-0.08	6.44
3,850.0	4.01	344.12	3,845.5	86.6	-49.2	-86.0	0.36	0.16	-4.68
3,875.0	4.12	343.77	3,870.4	88.3	-49.6	-87.7	0.45	0.44	-1.40
3,900.0	4.14	343.16	3,895.3	90.0	-50.2	-89.4	0.19	0.08	-2.44
3,925.0	4.09	340.94	3,920.3	91.7	-50.7	-91.1	0.67	-0.20	-8.88
3,950.0	4.01	336.34	3,945.2	93.4	-51.3	-92.7	1.34	-0.32	-18.40
3,975.0	3.87	329.32	3,970.2	94.9	-52.1	-94.3	2.01	-0.56	-28.08
4,000.0	3.64	324.19	3,995.1	96.3	-53.0	-95.6	1.63	-0.92	-20.52
4,025.0	3.41	321.73	4,020.1	97.5	-54.0	-96.8	1.10	-0.92	-9.84
4,050.0	3.09	319.07	4,045.0	98.6	-54.9	-97.9	1.41	-1.28	-10.64
4,075.0	2.96	316.96	4,070.0	99.6	-55.7	-98.9	0.68	-0.52	-8.44
4,100.0	2.94	314.92	4,095.0	100.5	-56.6	-99.8	0.43	-0.08	-8.16
4,125.0	2.93	310.49	4,119.9	101.4	-57.6	-100.6	0.91	-0.04	-17.72
4,150.0	2.96	307.69	4,144.9	102.2	-58.6	-101.4	0.59	0.12	-11.20
4,175.0	2.98	306.71	4,169.9	103.0	-59.6	-102.2	0.22	0.08	-3.92
4,200.0	3.03	306.62	4,194.8	103.7	-60.6	-103.0	0.20	0.20	-0.36
4,225.0	3.25	308.20	4,219.8	104.6	-61.7	-103.8	0.95	0.88	6.32
4,250.0	3.51	311.58	4,244.7	105.5	-62.9	-104.7	1.31	1.04	13.52
4,275.0	3.59	314.91	4,269.7	106.6	-64.0	-105.8	0.88	0.32	13.32
4,300.0	3.80	317.01	4,294.6	107.7	-65.1	-106.9	1.00	0.84	8.40
4,325.0	3.98	318.34	4,319.6	109.0	-66.3	-108.2	0.81	0.72	5.32
4,350.0	3.95	319.15	4,344.5	110.3	-67.4	-109.5	0.25	-0.12	3.24
4,375.0	3.91	319.82	4,369.5	111.6	-68.5	-110.7	0.24	-0.16	2.68
4,400.0	3.85	320.95	4,394.4	112.9	-69.6	-112.0	0.39	-0.24	4.52
4,425.0	3.89	321.78	4,419.3	114.2	-70.6	-113.3	0.28	0.16	3.32
4,450.0	3.89	322.94	4,444.3	115.6	-71.7	-114.7	0.31	0.00	4.64
4,475.0	3.88	324.36	4,469.2	116.9	-72.7	-116.0	0.39	-0.04	5.68
4,500.0	3.83	325.31	4,494.2	118.3	-73.6	-117.4	0.32	-0.20	3.80
4,525.0	3.82	326.17	4,519.1	119.7	-74.6	-118.7	0.23	-0.04	3.44
4,550.0	3.84	326.96	4,544.1	121.1	-75.5	-120.1	0.23	0.08	3.16
4,575.0	3.82	328.06	4,569.0	122.5	-76.4	-121.5	0.30	-0.08	4.40
4,600.0	3.80	329.90	4,594.0	123.9	-77.3	-122.9	0.50	-0.08	7.36
4,625.0	3.77	331.75	4,618.9	125.3	-78.1	-124.4	0.50	-0.12	7.40

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)	
4,650.0	3.76	333.26	4,643.8	126.8	-78.8	-125.8	0.40	-0.04	6.04	
4,675.0	3.78	333.68	4,668.8	128.3	-79.6	-127.3	0.14	0.08	1.68	
4,700.0	3.57	334.27	4,693.7	129.7	-80.3	-128.7	0.85	-0.84	2.36	
4,725.0	3.11	335.36	4,718.7	131.0	-80.9	-130.0	1.86	-1.84	4.36	
4,750.0	2.65	335.41	4,743.7	132.2	-81.4	-131.2	1.84	-1.84	0.20	
4,775.0	2.19	333.88	4,768.6	133.1	-81.9	-132.1	1.86	-1.84	-6.12	
4,800.0	1.40	331.91	4,793.6	133.8	-82.2	-132.8	3.17	-3.16	-7.88	
4,825.0	0.54	333.81	4,818.6	134.2	-82.4	-133.2	3.44	-3.44	7.60	
4,850.0	0.04	15.42	4,843.6	134.3	-82.5	-133.3	2.04	-2.00	166.44	
4,875.0	0.11	161.77	4,868.6	134.3	-82.4	-133.3	0.58	0.28	585.40	
4,900.0	0.07	156.66	4,893.6	134.3	-82.4	-133.2	0.16	-0.16	-20.44	
4,925.0	0.08	136.08	4,918.6	134.2	-82.4	-133.2	0.11	0.04	-82.32	
4,950.0	0.08	180.73	4,943.6	134.2	-82.4	-133.2	0.24	0.00	178.60	
4,975.0	0.12	255.81	4,968.6	134.2	-82.4	-133.2	0.50	0.16	300.32	
5,000.0	0.26	275.79	4,993.6	134.2	-82.5	-133.2	0.61	0.56	79.92	
5,025.0	0.46	287.51	5,018.6	134.2	-82.7	-133.2	0.85	0.80	46.88	
5,050.0	0.64	281.95	5,043.6	134.3	-82.9	-133.2	0.75	0.72	-22.24	
5,075.0	0.76	278.99	5,068.6	134.3	-83.2	-133.3	0.50	0.48	-11.84	
5,100.0	0.84	281.16	5,093.6	134.4	-83.5	-133.4	0.34	0.32	8.68	
5,125.0	0.85	278.99	5,118.6	134.4	-83.9	-133.4	0.13	0.04	-8.68	
5,150.0	0.83	280.01	5,143.6	134.5	-84.3	-133.5	0.10	-0.08	4.08	
5,175.0	0.61	289.17	5,168.6	134.6	-84.6	-133.5	0.99	-0.88	36.64	
5,200.0	0.44	301.12	5,193.6	134.7	-84.8	-133.6	0.81	-0.68	47.80	
5,225.0	0.42	299.63	5,218.6	134.8	-84.9	-133.7	0.09	-0.08	-5.96	
5,250.0	0.42	306.65	5,243.6	134.9	-85.1	-133.8	0.21	0.00	28.08	
5,275.0	0.41	303.66	5,268.6	135.0	-85.2	-133.9	0.10	-0.04	-11.96	
5,300.0	0.39	302.82	5,293.6	135.1	-85.4	-134.0	0.08	-0.08	-3.36	
5,325.0	0.33	307.04	5,318.6	135.2	-85.5	-134.1	0.26	-0.24	16.88	
5,350.0	0.31	309.69	5,343.6	135.2	-85.6	-134.2	0.10	-0.08	10.60	
5,375.0	0.35	312.81	5,368.6	135.3	-85.7	-134.3	0.18	0.16	12.48	
5,400.0	0.38	310.07	5,393.6	135.4	-85.8	-134.4	0.14	0.12	-10.96	
5,425.0	0.40	310.95	5,418.6	135.6	-86.0	-134.5	0.08	0.08	3.52	
5,450.0	0.35	302.64	5,443.6	135.7	-86.1	-134.6	0.30	-0.20	-33.24	
5,475.0	0.34	298.95	5,468.6	135.7	-86.2	-134.7	0.10	-0.04	-14.76	
5,500.0	0.35	299.89	5,493.6	135.8	-86.4	-134.7	0.05	0.04	3.76	
5,525.0	0.36	306.71	5,518.6	135.9	-86.5	-134.8	0.17	0.04	27.28	
5,550.0	0.38	305.11	5,543.6	136.0	-86.6	-134.9	0.09	0.08	-6.40	
5,575.0	0.42	305.44	5,568.6	136.1	-86.8	-135.0	0.16	0.16	1.32	
5,600.0	0.37	300.47	5,593.6	136.2	-86.9	-135.1	0.24	-0.20	-19.88	
5,625.0	0.40	309.55	5,618.6	136.3	-87.0	-135.2	0.27	0.12	36.32	
5,650.0	0.43	313.39	5,643.6	136.4	-87.2	-135.3	0.16	0.12	15.36	
5,675.0	0.37	307.69	5,668.6	136.5	-87.3	-135.4	0.29	-0.24	-22.80	
5,700.0	0.37	296.78	5,693.6	136.6	-87.5	-135.5	0.28	0.00	-43.64	

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,725.0	0.42	297.00	5,718.6	136.7	-87.6	-135.6	0.20	0.20	0.88
5,750.0	0.45	295.74	5,743.6	136.8	-87.8	-135.7	0.13	0.12	-5.04
5,775.0	0.46	291.80	5,768.6	136.8	-88.0	-135.8	0.13	0.04	-15.76
5,800.0	0.48	291.39	5,793.6	136.9	-88.1	-135.8	0.08	0.08	-1.64
5,825.0	0.50	293.60	5,818.6	137.0	-88.3	-135.9	0.11	0.08	8.84
5,850.0	0.53	294.35	5,843.6	137.1	-88.6	-136.0	0.12	0.12	3.00
5,875.0	0.52	290.36	5,868.6	137.2	-88.8	-136.1	0.15	-0.04	-15.96
5,900.0	0.61	279.44	5,893.6	137.2	-89.0	-136.1	0.56	0.36	-43.68
5,925.0	0.71	277.77	5,918.6	137.3	-89.3	-136.2	0.41	0.40	-6.68
5,950.0	0.74	275.61	5,943.6	137.3	-89.6	-136.2	0.16	0.12	-8.64
5,975.0	0.75	273.95	5,968.6	137.3	-89.9	-136.2	0.10	0.04	-6.64
6,000.0	0.84	273.82	5,993.6	137.4	-90.3	-136.3	0.36	0.36	-0.52
6,025.0	0.86	274.96	6,018.6	137.4	-90.6	-136.3	0.10	0.08	4.56
6,050.0	0.84	276.57	6,043.6	137.4	-91.0	-136.3	0.12	-0.08	6.44
6,075.0	0.88	273.28	6,068.6	137.5	-91.4	-136.3	0.25	0.16	-13.16
6,100.0	0.86	271.28	6,093.6	137.5	-91.8	-136.3	0.15	-0.08	-8.00
6,125.0	0.86	271.92	6,118.6	137.5	-92.1	-136.4	0.04	0.00	2.56
6,150.0	0.84	271.79	6,143.6	137.5	-92.5	-136.4	0.08	-0.08	-0.52
6,175.0	0.84	272.09	6,168.6	137.5	-92.9	-136.4	0.02	0.00	1.20
6,200.0	0.86	274.60	6,193.6	137.5	-93.2	-136.4	0.17	0.08	10.04
6,225.0	0.87	272.85	6,218.6	137.6	-93.6	-136.4	0.11	0.04	-7.00
6,250.0	0.88	271.18	6,243.6	137.6	-94.0	-136.4	0.11	0.04	-6.68
6,275.0	0.91	273.53	6,268.6	137.6	-94.4	-136.4	0.19	0.12	9.40
6,300.0	0.98	275.52	6,293.6	137.6	-94.8	-136.5	0.31	0.28	7.96
6,325.0	0.94	273.90	6,318.5	137.7	-95.2	-136.5	0.19	-0.16	-6.48
6,350.0	0.94	272.13	6,343.5	137.7	-95.6	-136.5	0.12	0.00	-7.08
6,375.0	0.96	273.01	6,368.5	137.7	-96.0	-136.5	0.10	0.08	3.52
6,400.0	0.94	271.90	6,393.5	137.7	-96.5	-136.5	0.11	-0.08	-4.44
6,425.0	0.97	272.44	6,418.5	137.7	-96.9	-136.5	0.13	0.12	2.16
6,450.0	0.99	273.85	6,443.5	137.8	-97.3	-136.6	0.13	0.08	5.64
6,475.0	0.97	275.94	6,468.5	137.8	-97.7	-136.6	0.16	-0.08	8.36
6,500.0	0.98	278.50	6,493.5	137.8	-98.1	-136.6	0.18	0.04	10.24
6,525.0	0.97	276.22	6,518.5	137.9	-98.6	-136.7	0.16	-0.04	-9.12
6,550.0	0.97	274.33	6,543.5	137.9	-99.0	-136.7	0.13	0.00	-7.56
6,575.0	0.96	272.63	6,568.5	138.0	-99.4	-136.7	0.12	-0.04	-6.80
6,600.0	1.00	273.40	6,593.5	138.0	-99.8	-136.8	0.17	0.16	3.08
6,625.0	1.02	274.25	6,618.5	138.0	-100.3	-136.8	0.10	0.08	3.40
6,650.0	1.04	276.71	6,643.5	138.1	-100.7	-136.8	0.19	0.08	9.84
6,675.0	1.05	275.88	6,668.5	138.1	-101.2	-136.9	0.07	0.04	-3.32
6,700.0	1.07	271.28	6,693.5	138.1	-101.6	-136.9	0.35	0.08	-18.40
6,725.0	1.03	275.80	6,718.5	138.2	-102.1	-136.9	0.37	-0.16	18.08
6,750.0	1.02	275.16	6,743.5	138.2	-102.5	-136.9	0.06	-0.04	-2.56
6,775.0	1.04	272.99	6,768.5	138.2	-103.0	-137.0	0.18	0.08	-8.68
6,800.0	1.05	275.33	6,793.5	138.3	-103.4	-137.0	0.18	0.04	9.36

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)
6,825.0	1.08	274.19	6,818.5	138.3	-103.9	-137.0	0.15	0.12	-4.56
6,850.0	1.06	271.42	6,843.5	138.3	-104.4	-137.0	0.22	-0.08	-11.08
6,875.0	1.07	272.99	6,868.5	138.4	-104.8	-137.1	0.12	0.04	6.28
6,900.0	1.11	272.29	6,893.5	138.4	-105.3	-137.1	0.17	0.16	-2.80
6,925.0	1.10	271.48	6,918.5	138.4	-105.8	-137.1	0.07	-0.04	-3.24
6,950.0	1.12	272.78	6,943.4	138.4	-106.3	-137.1	0.13	0.08	5.20
6,975.0	1.12	272.04	6,968.4	138.4	-106.8	-137.1	0.06	0.00	-2.96
7,000.0	1.11	273.49	6,993.4	138.5	-107.3	-137.1	0.12	-0.04	5.80
7,025.0	1.11	273.45	7,018.4	138.5	-107.7	-137.2	0.00	0.00	-0.16
7,050.0	1.12	271.71	7,043.4	138.5	-108.2	-137.2	0.14	0.04	-6.96
7,075.0	1.12	273.16	7,068.4	138.5	-108.7	-137.2	0.11	0.00	5.80
7,100.0	1.11	272.11	7,093.4	138.5	-109.2	-137.2	0.09	-0.04	-4.20
7,125.0	1.12	270.68	7,118.4	138.6	-109.7	-137.2	0.12	0.04	-5.72
7,150.0	1.10	272.15	7,143.4	138.6	-110.2	-137.2	0.14	-0.08	5.88
7,175.0	1.08	272.07	7,168.4	138.6	-110.6	-137.2	0.08	-0.08	-0.32
7,200.0	1.04	270.43	7,193.4	138.6	-111.1	-137.2	0.20	-0.16	-6.56
7,225.0	1.00	270.68	7,218.4	138.6	-111.6	-137.2	0.16	-0.16	1.00
7,250.0	0.92	270.47	7,243.4	138.6	-112.0	-137.2	0.32	-0.32	-0.84
7,275.0	0.51	259.07	7,268.4	138.6	-112.3	-137.2	1.73	-1.64	-45.60
7,300.0	0.24	195.01	7,293.4	138.5	-112.4	-137.1	1.84	-1.08	-256.24
7,325.0	0.40	155.23	7,318.4	138.4	-112.4	-137.0	1.06	0.64	-159.12
7,350.0	0.47	150.23	7,343.4	138.2	-112.3	-136.8	0.32	0.28	-20.00
7,375.0	0.44	155.09	7,368.4	138.0	-112.2	-136.7	0.20	-0.12	19.44
7,400.0	0.50	151.48	7,393.4	137.9	-112.1	-136.5	0.27	0.24	-14.44
7,425.0	0.58	150.47	7,418.4	137.7	-112.0	-136.3	0.32	0.32	-4.04
7,450.0	0.65	149.00	7,443.4	137.4	-111.9	-136.0	0.29	0.28	-5.88
7,475.0	0.67	149.63	7,468.4	137.2	-111.7	-135.8	0.09	0.08	2.52
7,500.0	0.66	151.24	7,493.4	136.9	-111.6	-135.5	0.08	-0.04	6.44
7,525.0	0.70	148.92	7,518.4	136.7	-111.4	-135.3	0.19	0.16	-9.28
7,550.0	0.73	148.34	7,543.4	136.4	-111.3	-135.0	0.12	0.12	-2.32
7,575.0	0.76	152.04	7,568.4	136.1	-111.1	-134.7	0.23	0.12	14.80
7,600.0	0.69	156.88	7,593.4	135.8	-111.0	-134.5	0.37	-0.28	19.36
7,625.0	0.63	158.12	7,618.4	135.6	-110.8	-134.2	0.25	-0.24	4.96
7,650.0	0.62	162.68	7,643.4	135.3	-110.8	-133.9	0.20	-0.04	18.24
7,675.0	0.59	166.38	7,668.4	135.1	-110.7	-133.7	0.20	-0.12	14.80
7,700.0	0.63	165.04	7,693.4	134.8	-110.6	-133.4	0.17	0.16	-5.36
7,725.0	0.66	162.71	7,718.4	134.5	-110.5	-133.2	0.16	0.12	-9.32
7,750.0	0.68	160.33	7,743.4	134.2	-110.4	-132.9	0.14	0.08	-9.52
7,775.0	0.67	158.59	7,768.4	134.0	-110.3	-132.6	0.09	-0.04	-6.96
7,800.0	0.64	159.85	7,793.4	133.7	-110.2	-132.3	0.13	-0.12	5.04
7,825.0	0.55	159.65	7,818.4	133.5	-110.2	-132.1	0.36	-0.36	-0.80
7,850.0	0.71	167.56	7,843.4	133.2	-110.1	-131.8	0.73	0.64	31.64
7,875.0	0.88	171.74	7,868.4	132.9	-110.0	-131.5	0.72	0.68	16.72

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)
7,900.0	0.94	174.43	7,893.4	132.5	-110.0	-131.1	0.29	0.24	10.76
7,925.0	1.08	175.90	7,918.4	132.0	-109.9	-130.7	0.57	0.56	5.88
7,950.0	1.13	178.01	7,943.3	131.5	-109.9	-130.2	0.26	0.20	8.44
7,975.0	1.15	180.18	7,968.3	131.0	-109.9	-129.7	0.19	0.08	8.68
8,000.0	1.11	179.06	7,993.3	130.6	-109.9	-129.2	0.18	-0.16	-4.48
8,025.0	1.14	181.65	8,018.3	130.1	-109.9	-128.7	0.24	0.12	10.36
8,050.0	1.18	182.87	8,043.3	129.6	-109.9	-128.2	0.19	0.16	4.88
8,075.0	1.18	181.71	8,068.3	129.0	-109.9	-127.7	0.10	0.00	-4.64
8,100.0	1.23	175.93	8,093.3	128.5	-109.9	-127.2	0.53	0.20	-23.12
8,125.0	1.23	168.50	8,118.3	128.0	-109.9	-126.6	0.64	0.00	-29.72
8,150.0	1.30	165.01	8,143.3	127.4	-109.7	-126.1	0.42	0.28	-13.96
8,175.0	1.37	163.58	8,168.3	126.9	-109.6	-125.5	0.31	0.28	-5.72
8,200.0	1.39	163.18	8,193.3	126.3	-109.4	-125.0	0.09	0.08	-1.60
8,225.0	1.44	162.75	8,218.3	125.7	-109.2	-124.4	0.20	0.20	-1.72
8,250.0	1.44	162.02	8,243.3	125.1	-109.0	-123.8	0.07	0.00	-2.92
8,275.0	1.39	161.99	8,268.3	124.5	-108.8	-123.2	0.20	-0.20	-0.12
8,300.0	1.15	161.14	8,293.3	124.0	-108.7	-122.7	0.96	-0.96	-3.40
8,325.0	0.69	157.41	8,318.3	123.6	-108.5	-122.3	1.85	-1.84	-14.92
8,350.0	0.32	153.68	8,343.3	123.4	-108.4	-122.1	1.49	-1.48	-14.92
8,375.0	0.22	144.28	8,368.3	123.3	-108.4	-122.0	0.44	-0.40	-37.60
8,400.0	0.18	136.41	8,393.3	123.3	-108.3	-121.9	0.19	-0.16	-31.48
8,425.0	0.07	117.68	8,418.3	123.2	-108.3	-121.9	0.46	-0.44	-74.92
8,450.0	0.11	116.79	8,443.3	123.2	-108.2	-121.9	0.16	0.16	-3.56
8,475.0	0.12	125.56	8,468.3	123.2	-108.2	-121.9	0.08	0.04	35.08
8,500.0	0.16	134.22	8,493.3	123.1	-108.2	-121.8	0.18	0.16	34.64
8,525.0	0.17	142.19	8,518.3	123.1	-108.1	-121.8	0.10	0.04	31.88
8,550.0	0.20	169.14	8,543.3	123.0	-108.1	-121.7	0.36	0.12	107.80
8,575.0	0.21	193.37	8,568.3	122.9	-108.1	-121.6	0.35	0.04	96.92
8,600.0	0.18	200.20	8,593.3	122.8	-108.1	-121.5	0.15	-0.12	27.32
8,625.0	0.20	187.21	8,618.3	122.8	-108.1	-121.4	0.19	0.08	-51.96
8,638.1	0.23	180.81	8,631.4	122.7	-108.1	-121.4	0.29	0.23	-48.85
8,769.0	0.56	225.49	8,762.3	122.0	-108.6	-120.7	0.33	0.25	34.13
8,863.0	0.68	234.37	8,856.2	121.4	-109.4	-120.0	0.16	0.13	9.45
8,926.0	1.69	189.12	8,919.2	120.2	-109.8	-118.9	2.07	1.60	-71.83
8,957.0	4.39	181.08	8,950.2	118.6	-109.9	-117.2	8.80	8.71	-25.94
8,989.0	7.69	179.35	8,982.0	115.2	-109.9	-113.9	10.33	10.31	-5.41
9,020.0	9.84	180.82	9,012.6	110.5	-109.9	-109.1	6.97	6.94	4.74
9,051.0	12.14	183.42	9,043.1	104.6	-110.2	-103.2	7.59	7.42	8.39
9,083.0	15.05	182.30	9,074.2	97.1	-110.5	-95.7	9.13	9.09	-3.50
9,109.0	17.40	179.96	9,099.1	89.8	-110.7	-88.5	9.40	9.06	-9.00
FTP @ 9109'MD / 9099.1'TVD									
9,114.0	17.86	179.58	9,103.9	88.3	-110.7	-86.9	9.40	9.11	-7.62
9,146.0	19.66	179.00	9,134.2	78.0	-110.5	-76.7	5.66	5.63	-1.81

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)	
9,177.0	21.35	175.57	9,163.2	67.2	-110.0	-65.8	6.69	5.45	-11.06	
9,209.0	24.63	174.05	9,192.7	54.7	-108.9	-53.4	10.42	10.25	-4.75	
9,240.0	25.61	174.76	9,220.8	41.6	-107.6	-40.3	3.31	3.16	2.29	
9,272.0	28.24	175.65	9,249.3	27.2	-106.4	-25.9	8.31	8.22	2.78	
9,303.0	31.90	178.44	9,276.1	11.7	-105.6	-10.4	12.64	11.81	9.00	
9,335.0	35.79	180.43	9,302.7	-6.1	-105.4	7.4	12.64	12.16	6.22	
9,366.0	37.93	180.37	9,327.5	-24.7	-105.6	26.0	6.90	6.90	-0.19	
9,398.0	40.84	179.13	9,352.2	-45.0	-105.5	46.3	9.42	9.09	-3.88	
9,429.0	43.45	177.56	9,375.2	-65.8	-104.9	67.1	9.08	8.42	-5.06	
9,460.0	45.86	177.93	9,397.2	-87.6	-104.0	88.8	7.82	7.77	1.19	
9,492.0	48.09	179.41	9,419.1	-111.0	-103.5	112.2	7.75	6.97	4.63	
9,523.0	51.05	181.03	9,439.2	-134.6	-103.6	135.8	10.34	9.55	5.23	
9,555.0	54.10	182.97	9,458.6	-159.9	-104.5	161.2	10.68	9.53	6.06	
9,586.0	57.12	183.47	9,476.1	-185.5	-105.9	186.8	9.83	9.74	1.61	
9,618.0	61.57	183.58	9,492.5	-213.0	-107.6	214.3	13.91	13.91	0.34	
9,649.0	66.33	182.21	9,506.1	-240.8	-109.0	242.1	15.86	15.35	-4.42	
9,681.0	69.40	181.44	9,518.1	-270.4	-109.9	271.7	9.85	9.59	-2.41	
9,712.0	71.58	180.91	9,528.5	-299.6	-110.5	300.9	7.21	7.03	-1.71	
9,743.0	72.64	180.56	9,538.0	-329.1	-110.9	330.4	3.58	3.42	-1.13	
9,775.0	73.69	181.61	9,547.3	-359.7	-111.5	361.1	4.54	3.28	3.28	
9,806.0	78.35	182.23	9,554.7	-389.8	-112.5	391.1	15.16	15.03	2.00	
9,837.0	82.00	181.71	9,560.0	-420.3	-113.5	421.7	11.89	11.77	-1.68	
9,869.0	88.17	180.74	9,562.8	-452.2	-114.2	453.5	19.52	19.28	-3.03	
9,900.0	90.07	179.10	9,563.3	-483.2	-114.2	484.5	8.10	6.13	-5.29	
9,932.0	90.01	177.90	9,563.2	-515.1	-113.3	516.5	3.75	-0.19	-3.75	
10,031.0	91.28	177.38	9,562.1	-614.0	-109.3	615.3	1.39	1.28	-0.53	
10,125.0	90.61	177.79	9,560.6	-707.9	-105.3	709.2	0.84	-0.71	0.44	
10,220.0	89.93	179.43	9,560.1	-802.9	-103.0	804.1	1.87	-0.72	1.73	
10,314.0	89.24	180.70	9,560.8	-896.9	-103.1	898.1	1.54	-0.73	1.35	
10,409.0	90.50	180.60	9,561.0	-991.9	-104.2	993.1	1.33	1.33	-0.11	
10,503.0	89.83	180.67	9,560.7	-1,085.9	-105.2	1,087.1	0.72	-0.71	0.07	
10,597.0	87.85	180.25	9,562.6	-1,179.9	-106.0	1,181.1	2.15	-2.11	-0.45	
10,692.0	86.75	178.72	9,567.1	-1,274.8	-105.1	1,275.9	1.98	-1.16	-1.61	
10,786.0	88.02	178.56	9,571.4	-1,368.6	-102.9	1,369.8	1.36	1.35	-0.17	
10,880.0	89.87	178.78	9,573.1	-1,462.6	-100.7	1,463.7	1.98	1.97	0.23	
10,974.0	89.45	179.66	9,573.7	-1,556.6	-99.4	1,557.7	1.04	-0.45	0.94	
11,069.0	90.36	179.80	9,573.9	-1,651.6	-99.0	1,652.7	0.97	0.96	0.15	
11,163.0	89.63	180.29	9,573.9	-1,745.6	-99.1	1,746.7	0.94	-0.78	0.52	
11,258.0	88.81	179.18	9,575.2	-1,840.6	-98.6	1,841.6	1.45	-0.86	-1.17	
11,352.0	87.62	178.04	9,578.1	-1,934.5	-96.3	1,935.5	1.75	-1.27	-1.21	
11,446.0	88.41	177.26	9,581.3	-2,028.3	-92.5	2,029.3	1.18	0.84	-0.83	
11,541.0	89.77	176.98	9,582.9	-2,123.2	-87.7	2,124.1	1.46	1.43	-0.29	
11,635.0	89.02	176.30	9,583.8	-2,217.0	-82.2	2,217.9	1.08	-0.80	-0.72	
11,729.0	90.11	176.61	9,584.6	-2,310.9	-76.4	2,311.6	1.21	1.16	0.33	

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

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)	
11,823.0	91.30	176.73	9,583.4	-2,404.7	-70.9	2,405.4	1.27	1.27	0.13	
11,918.0	90.31	175.85	9,582.1	-2,499.5	-64.8	2,500.1	1.39	-1.04	-0.93	
12,012.0	88.29	176.77	9,583.2	-2,593.3	-58.7	2,593.8	2.36	-2.15	0.98	
12,107.0	87.50	176.62	9,586.7	-2,688.0	-53.3	2,688.5	0.85	-0.83	-0.16	
12,201.0	86.53	176.15	9,591.6	-2,781.7	-47.4	2,782.1	1.15	-1.03	-0.50	
12,295.0	87.06	176.17	9,596.9	-2,875.4	-41.1	2,875.7	0.56	0.56	0.02	
12,389.0	89.43	176.70	9,599.7	-2,969.1	-35.2	2,969.4	2.58	2.52	0.56	
12,483.0	91.60	177.77	9,598.9	-3,063.0	-30.7	3,063.2	2.57	2.31	1.14	
12,577.0	91.60	179.57	9,596.3	-3,157.0	-28.5	3,157.1	1.91	0.00	1.91	
12,672.0	91.56	181.81	9,593.6	-3,251.9	-29.7	3,252.0	2.36	-0.04	2.36	
12,766.0	91.51	182.68	9,591.1	-3,345.8	-33.3	3,346.0	0.93	-0.05	0.93	
12,861.0	90.91	182.92	9,589.1	-3,440.7	-38.0	3,440.9	0.68	-0.63	0.25	
12,955.0	88.78	182.02	9,589.4	-3,534.6	-42.0	3,534.8	2.46	-2.27	-0.96	
13,050.0	89.73	182.07	9,590.6	-3,629.5	-45.4	3,629.8	1.00	1.00	0.05	
13,144.0	89.09	181.17	9,591.6	-3,723.5	-48.1	3,723.8	1.17	-0.68	-0.96	
13,238.0	89.77	181.20	9,592.5	-3,817.4	-50.0	3,817.8	0.72	0.72	0.03	
13,332.0	89.19	180.49	9,593.4	-3,911.4	-51.4	3,911.8	0.98	-0.62	-0.76	
13,427.0	90.84	180.70	9,593.3	-4,006.4	-52.4	4,006.7	1.75	1.74	0.22	
13,521.0	89.78	180.89	9,592.8	-4,100.4	-53.7	4,100.7	1.15	-1.13	0.20	
13,615.0	88.39	181.33	9,594.3	-4,194.4	-55.5	4,194.7	1.55	-1.48	0.47	
13,709.0	88.83	181.56	9,596.6	-4,288.3	-57.9	4,288.7	0.53	0.47	0.24	
13,804.0	89.19	180.60	9,598.3	-4,383.3	-59.7	4,383.7	1.08	0.38	-1.01	
13,898.0	91.92	179.90	9,597.3	-4,477.3	-60.1	4,477.7	3.00	2.90	-0.74	
13,992.0	92.12	180.08	9,594.0	-4,571.2	-60.1	4,571.6	0.29	0.21	0.19	
14,087.0	91.50	180.02	9,591.0	-4,666.2	-60.2	4,666.5	0.66	-0.65	-0.06	
14,181.0	91.37	179.69	9,588.7	-4,760.1	-59.9	4,760.5	0.38	-0.14	-0.35	
14,276.0	88.96	180.37	9,588.4	-4,855.1	-60.0	4,855.5	2.64	-2.54	0.72	
14,370.0	88.40	180.52	9,590.6	-4,949.1	-60.7	4,949.5	0.62	-0.60	0.16	
14,386.0	88.50	180.59	9,591.0	-4,965.1	-60.9	4,965.5	0.76	0.63	0.44	
Final MWD Survey @ 14386'MD										
14,402.0	88.50	180.59	9,591.4	-4,981.1	-61.0	4,981.4	0.00	0.00	0.00	
LTP @ 14402'MD / 9591.4'TVD										
14,451.0	88.50	180.59	9,592.7	-5,030.1	-61.5	5,030.4	0.00	0.00	0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,109.0	9,099.1	89.8	-110.7	FTP @ 9109'MD / 9099.1'TVD	
14,386.0	9,591.0	-4,965.1	-60.9	Final MWD Survey @ 14386'MD	
14,402.0	9,591.4	-4,981.1	-61.0	LTP @ 14402'MD / 9591.4'TVD	
14,451.0	9,592.7	-5,030.1	-61.5	PTD @ 14451'MD	

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well SOPAPILLA STATE#5H
Project:	LEA COUNTY, NM	TVD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Site:	BULLDOG	MD Reference:	KB=30' @ 3573.1usft (Scan Quest)
Well:	SOPAPILLA STATE #5H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	OWB	Database:	EDM_Users

Checked By: _____ Approved By: _____ Date: _____