District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, 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, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 18 2015
RECEIVED

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	[2] Pool Code	[3] Pool Name
30-015-43302	96217	Willow Lake; Bone Spring, Southeast

[4] Property Code	[5] Property Name	[6] Well Number
	COTTONTAIL 16 STATE COM	2H

[7] OGRID No.	[8] Operator Name	[9] Elevation
6137	DEVON ENERGY PRODUCTION COMPANY, L.P.	3022.7

[10] Surface Location

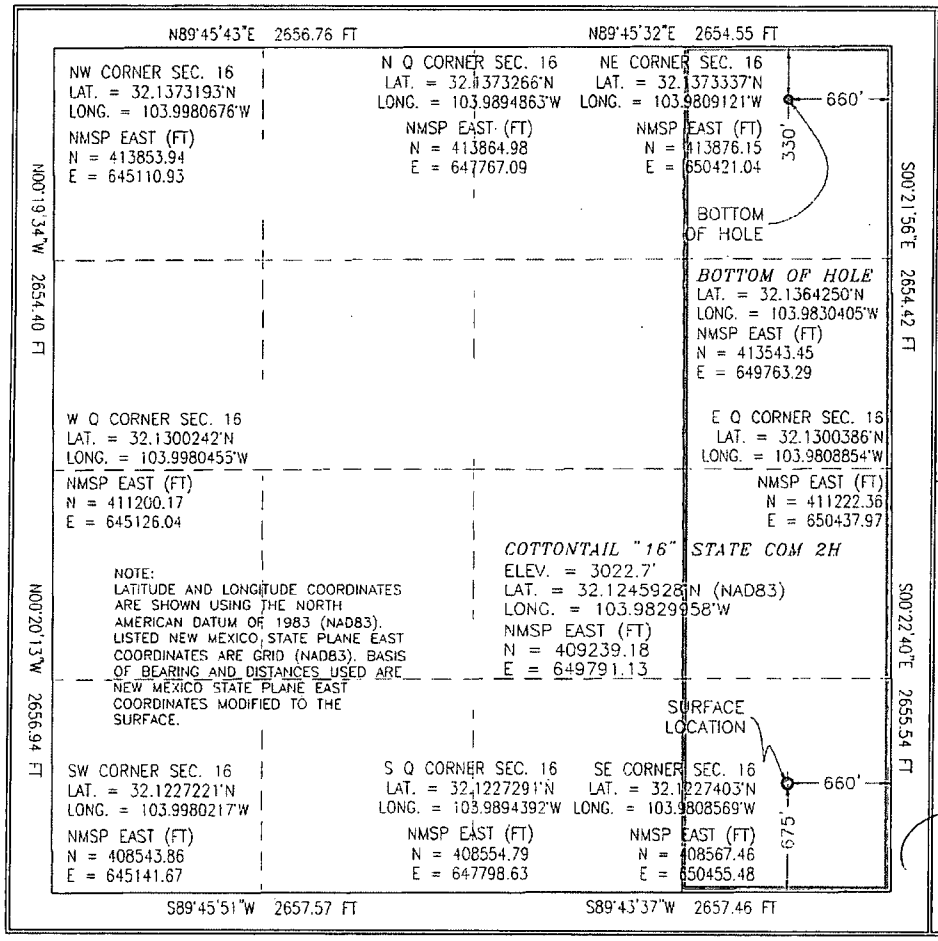
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	25 S	29 E		675	SOUTH	660	EAST	EDDY

[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
A	16	25 S	29 E		330	NORTH	660	EAST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160 ac			

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.



[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 Date 8/13/15

Trina C. Couch, Regulatory Analyst
Printed Name

trina.couch@dvn.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JULY 13, 2015
Date of Survey

Signature and Seal of Professional Surveyor:

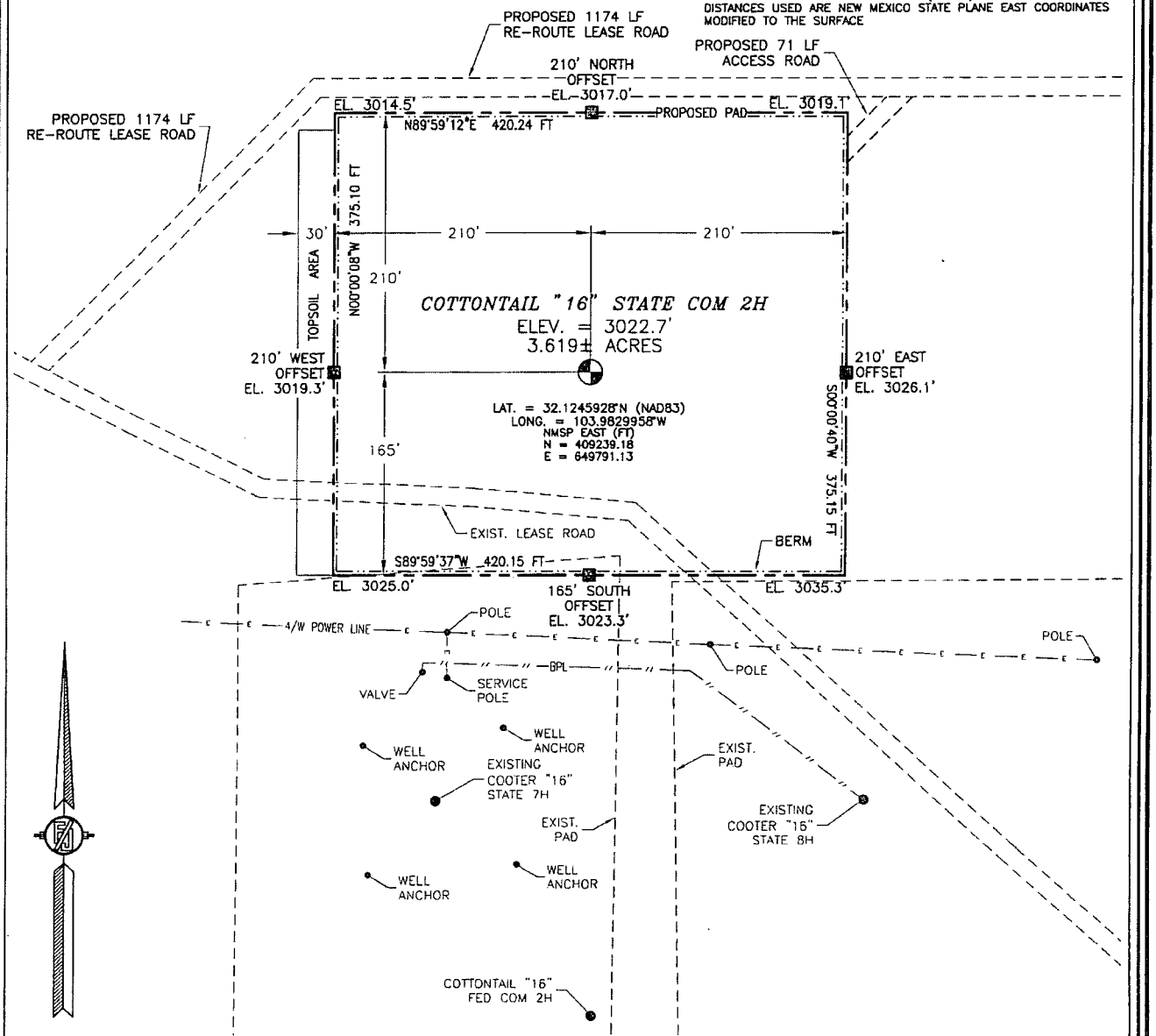
Certificate Number: HERMON F. JARAMILLO, PLS 12797

SURVEY NO. 3649A

8/18/15

SECTION 16, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



0 12 60 120 240

SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF US HIGHWAY 285 AND LONGHORN ROAD GO EAST ON LONGHORN ROAD ACROSS THE PECOS RIVER TO THE FIRST ROAD ON LEFT APPROX. 4.3 MILES, TURN NORTHEAST GO APPROX. 1.8 MILES TO A LEASE ROAD ON LEFT (NORTH), TURN NORTH ON LEASE ROAD GO APPROX. 3.2 MILES TO A ROAD LATH WITH RED & WHITE FLAGGING ON LEFT SIDE (WEST) OF ROAD. FOLLOW ROAD LATHS WEST APPROX. 400', TURN LEFT GO SOUTHWEST APPROX. 71' TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTONTAIL "16" STATE COM 2H

LOCATED 675 FT. FROM THE SOUTH LINE AND 660 FT. FROM THE EAST LINE OF SECTION 16, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO

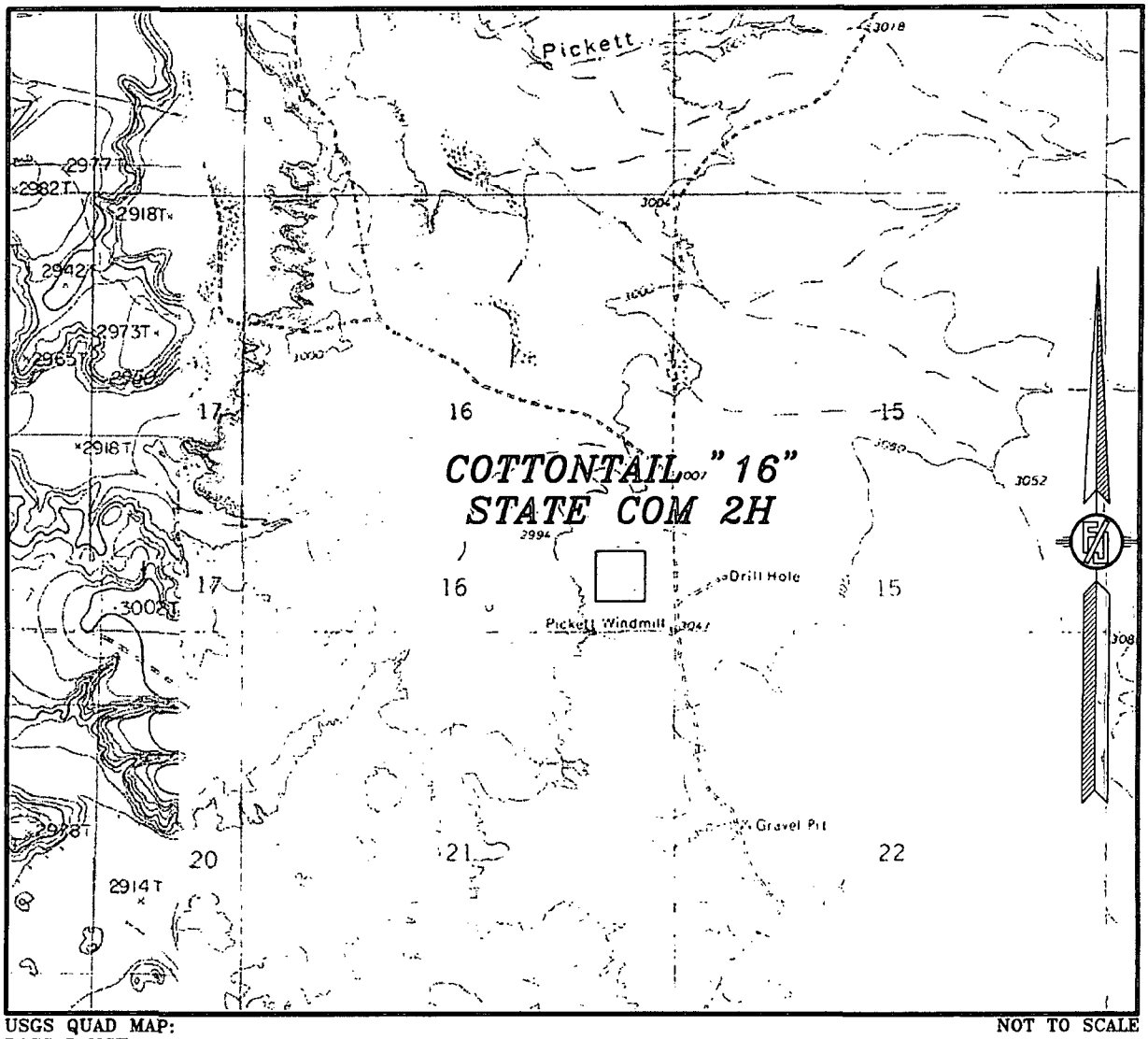
JULY 13, 2015

SURVEY NO. 3649A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 16, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
ROSS RANCH

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTONTAIL "16" STATE COM 2H

LOCATED 675 FT. FROM THE SOUTH LINE
AND 660 FT. FROM THE EAST LINE OF
SECTION 16, TOWNSHIP 25 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

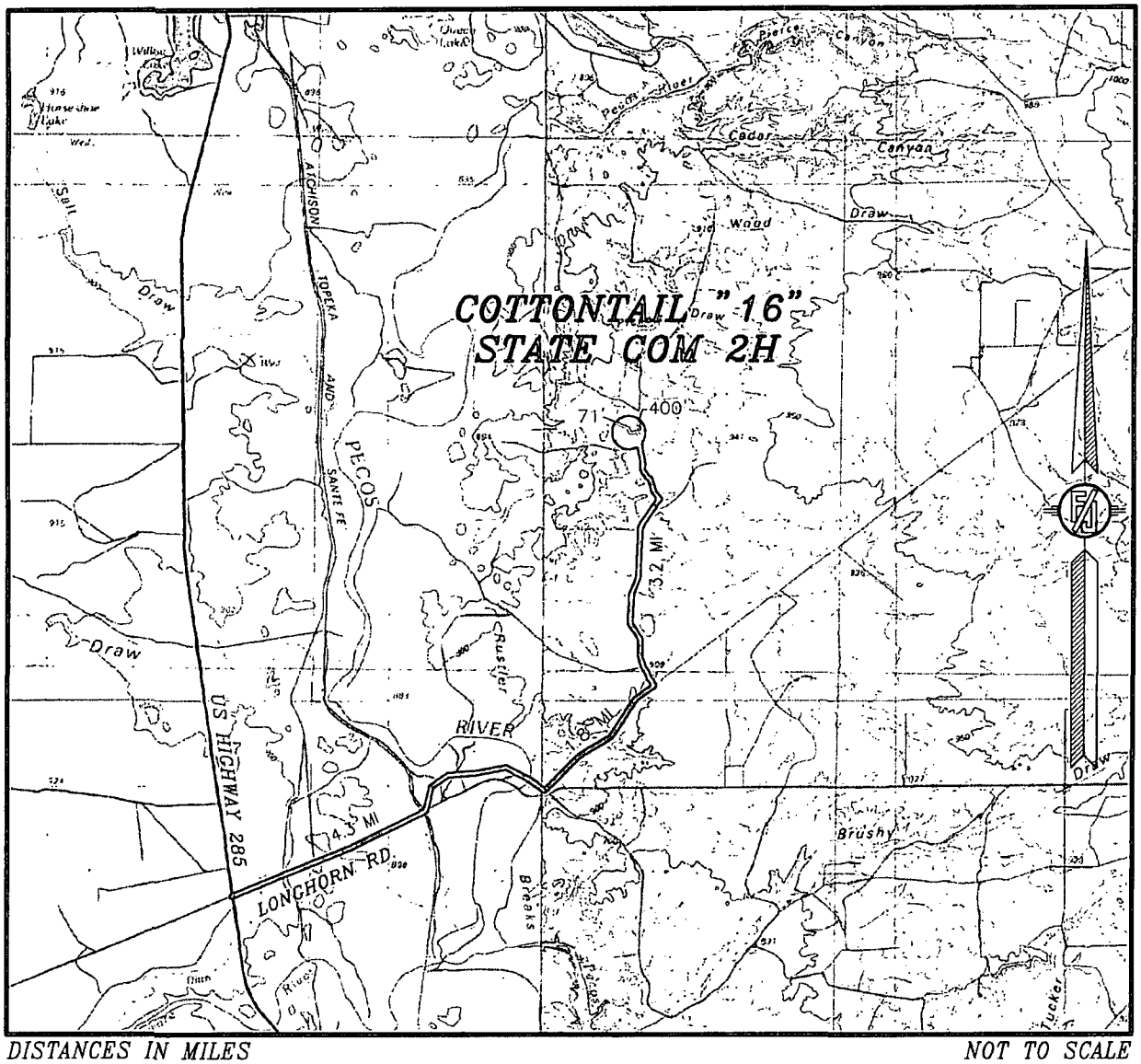
JULY 13, 2015

SURVEY NO. 3649A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 16, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTONTAIL "16" STATE COM 2H

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AND 660 FT. FROM THE EAST LINE OF
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RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JULY 13, 2015

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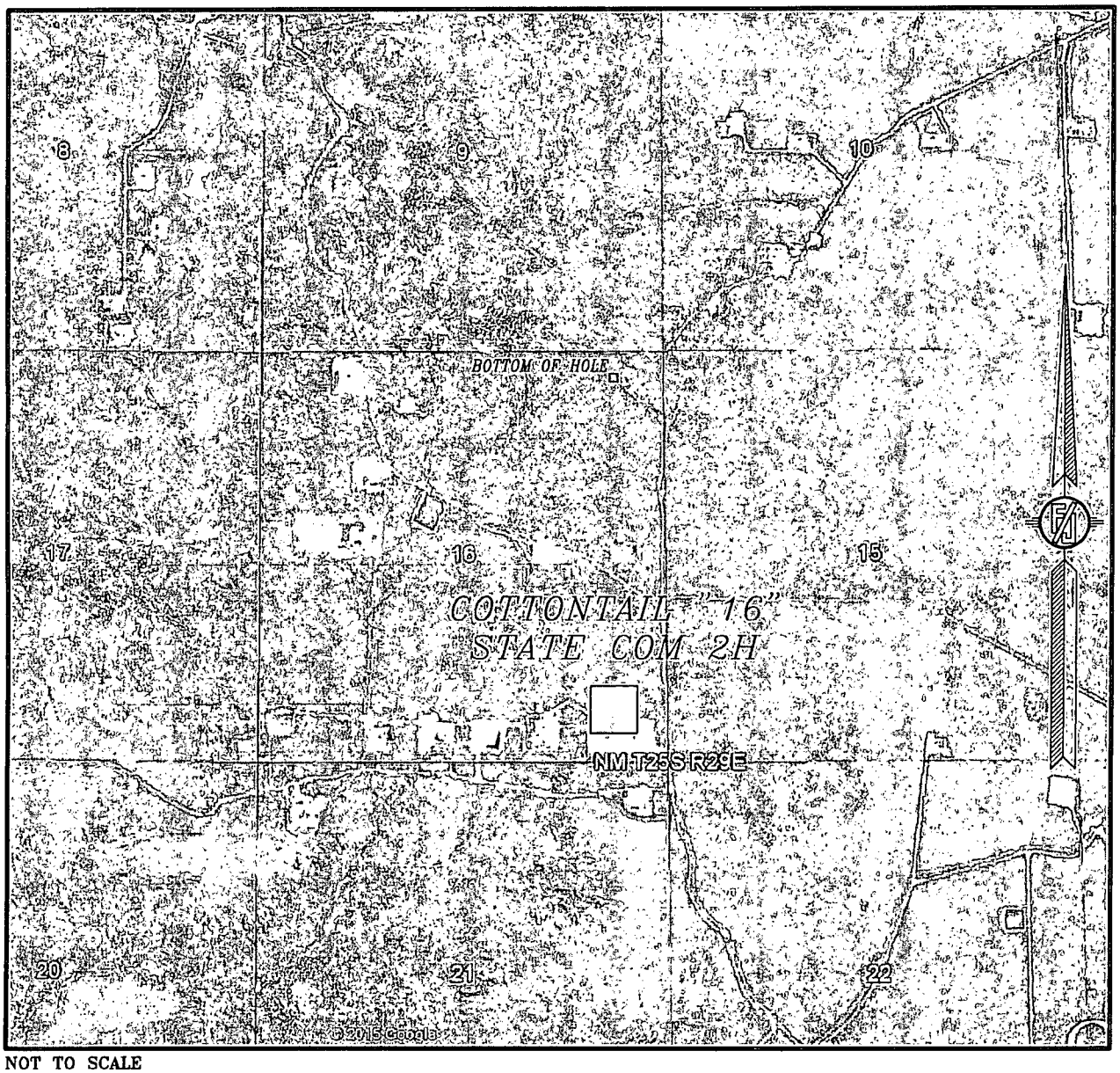
SURVEY NO. 3649A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 16, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
OCTOBER 2014

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTONTAIL "16" STATE COM 2H

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AND 660 FT. FROM THE EAST LINE OF
SECTION 16, TOWNSHIP 25 SOUTH,
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EDDY COUNTY, STATE OF NEW MEXICO

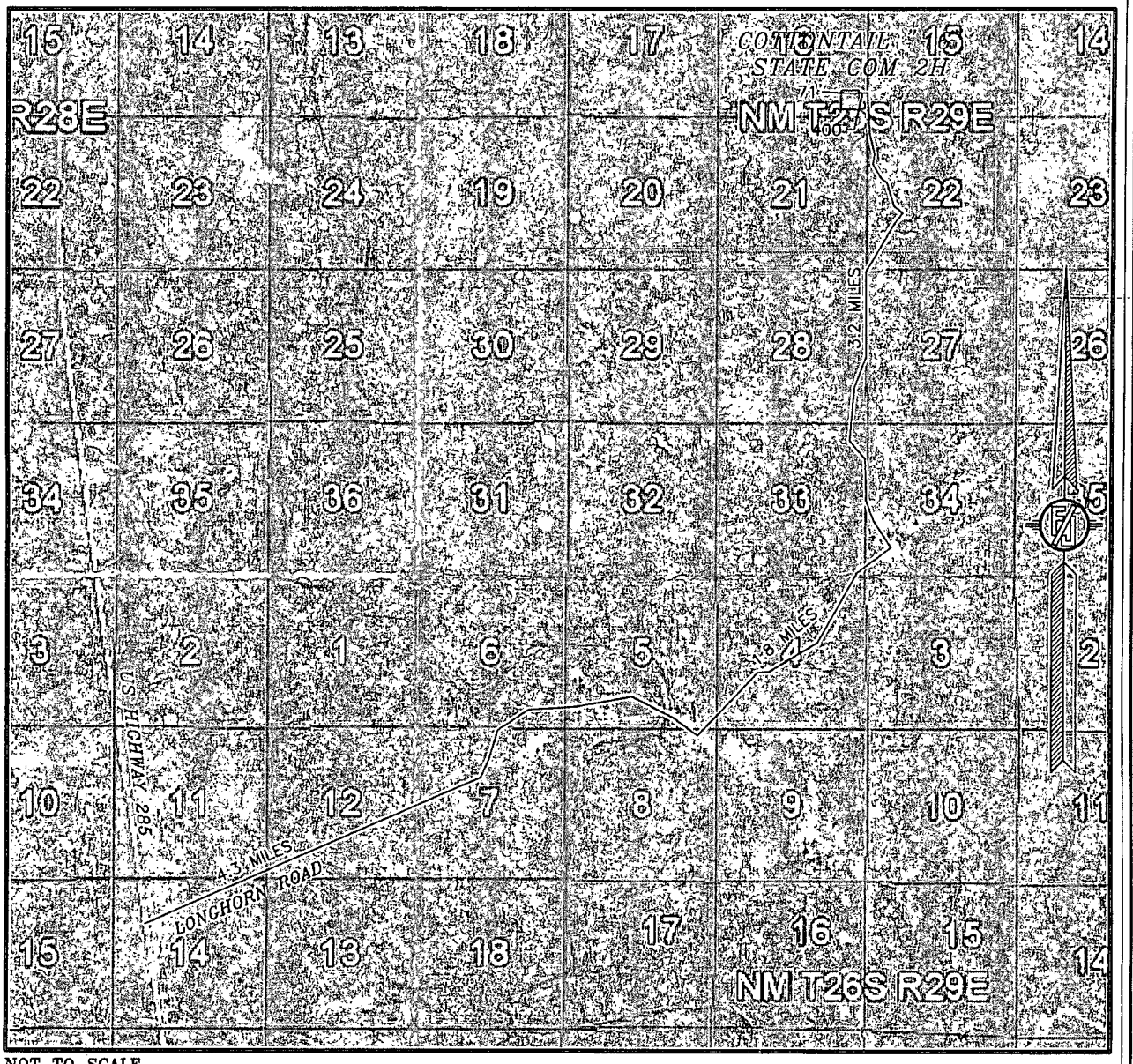
JULY 13, 2015

SURVEY NO. 3649A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 16, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
OCTOBER 2014

DEVON ENERGY PRODUCTION COMPANY, L.P.

COTTONTAIL "16" STATE COM 2H

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SECTION 16, TOWNSHIP 25 SOUTH,
RANGE 29 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JULY 13, 2015

SURVEY NO. 3649A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

1. Geologic Formations

TVD of target	8,770'	Pilot hole depth	N/A
MD at TD:	13,445'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	630		
Top of Salt	1,375		
Base of Salt	2,890		
Delaware	2,940		
Cherry Canyon	3,885		
Brushy Canyon	5,195		
1st Bone Spring Lime	6,845		
1st Bone Spring Sand	7,720		
2nd Bone Spring Lime	8,020		
2nd Bone Spring Sand	8,570		
Target Top	8,729		
Target Base	8,819		

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	700'	13.375"	48	H-40	STC	1.83	4.11	15.03
12.25"	0	4,300'	9.625"	40	J-55	BTC	1.15	3.43	4.69
12.25"	4,300'	5,400'	9.625"	40	HCK-55	BTC	1.506	1.41	4.29
8.75"	0	13,445'	5.5"	17	P-110	LTC	1.22	1.51	2.51
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	H_2O gal/sk	Yld ft3/ sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	760	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	1230	12.9	9.81	1.85	14	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod Single Stage	400	11.9	12.89	2.31	n/a	Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1480	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod Two Stage	370	11.9	12.89	2.31	n/a	1st Stage Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1480	14.5	5.31	1.2	25	1st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 5450ft					
	20	11	14.81	2.55	22	2nd Stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	30	14.8	6.32	1.33	6	2nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	100%
9-5/8" Intermediate	0'	75%
5-1/2" Production Casing Single Stage Option	5200'	25%
5-1/2" Production Casing Two Stage Option	1St Stage = 5450' / 2nd Stage = 5200'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	Y	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi. • Wellhead will be installed by wellhead vendor representatives. • If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • Wellhead representative will install the test plug for the initial BOP test. • Wellhead will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 5M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.	

	Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	700'	FW Gel	8.6-8.8	28-34	N/C
700'	5,400'	Saturated Brine	10.0-10.2	28-34	N/C
5,400'	13,445'	Cut Brine	8.5-9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4241 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? No.
Will be pre-setting casing? No.

Attachments
_x_ Directional Plan
___ Other, describe

DEVON ENERGY

Project: Eddy Co., NM
Site: Cottontail 16 State Com
Well: #2H
Wellbore: Original Hole
Design: Plan #1

devon

Precision Directional Services

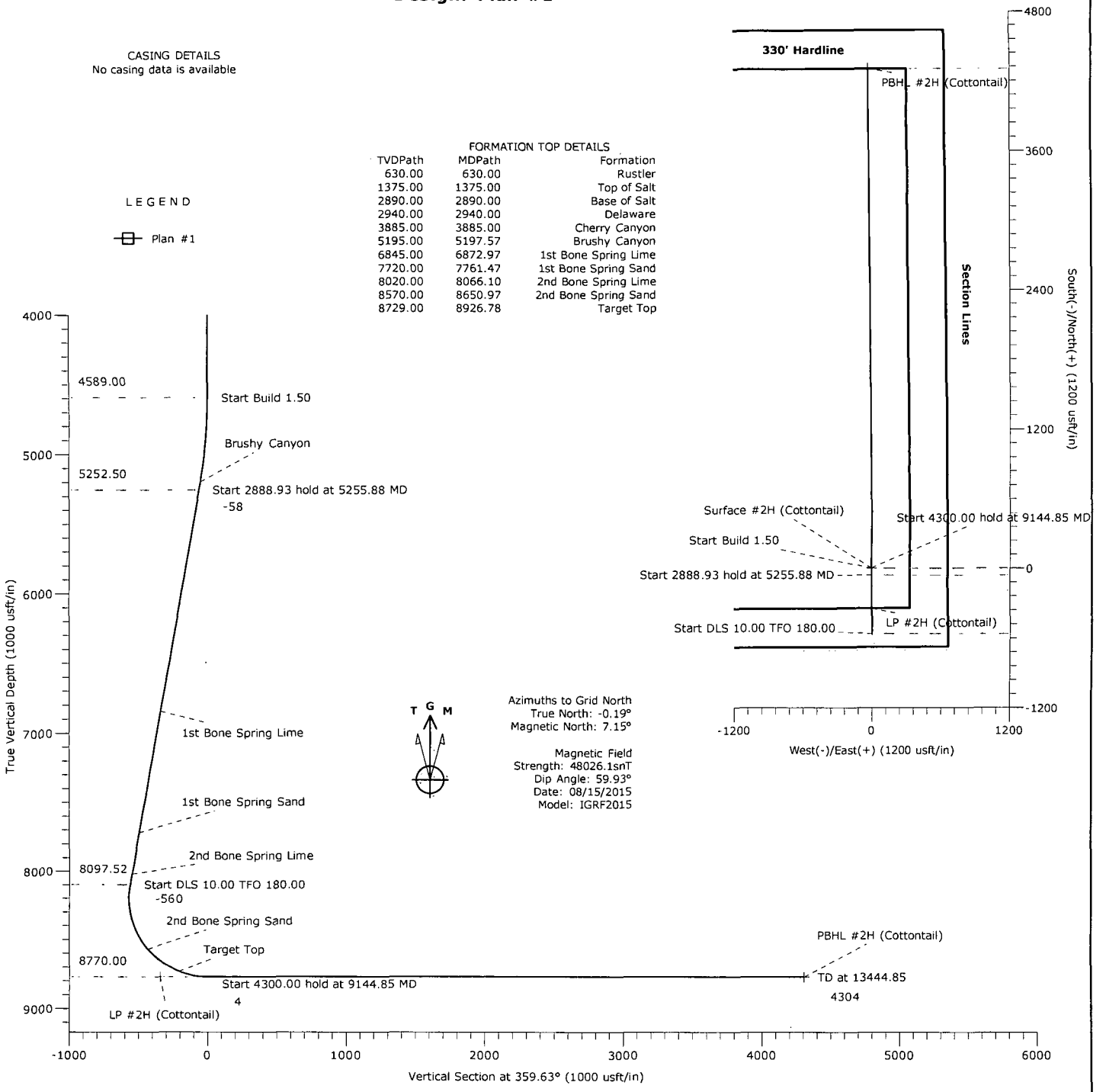
CASING DETAILS
No casing data is available

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
630.00	630.00	Rustler
1375.00	1375.00	Top of Salt
2890.00	2890.00	Base of Salt
2940.00	2940.00	Delaware
3885.00	3885.00	Cherry Canyon
5195.00	5197.57	Brushy Canyon
6845.00	6872.97	1st Bone Spring Lime
7720.00	7761.47	1st Bone Spring Sand
8020.00	8066.10	2nd Bone Spring Lime
8570.00	8650.97	2nd Bone Spring Sand
8729.00	8926.78	Target Top

LEGEND

Plan #1



Azimuths to Grid North
True North: -0.19°
Magnetic North: 7.15°

Magnetic Field
Strength: 48026.1snT
Dip Angle: 59.93°
Date: 08/15/2015
Model: IGRF2015

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Surface #2H (Cottontail)	0.00	0.00	0.00	409239.18	649791.13	32° 7' 28.534 N	103° 58' 58.785 W	Point
LP #2H (Cottontail)	8770.00	-344.66	2.21	408894.52	649793.34	32° 7' 25.123 N	103° 58' 58.772 W	Point
PBHL #2H (Cottontail)	8770.00	4304.27	-27.84	413543.45	649763.29	32° 8' 11.130 N	103° 58' 58.946 W	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4589.00	0.00	0.00	4589.00	0.00	0.00	0.00	0.00	0.00	
3	5255.88	10.00	179.63	5252.50	-58.07	0.37	1.50	179.63	-58.07	
4	8144.82	10.00	179.63	8097.52	-559.88	3.58	0.00	0.00	-559.89	
5	9144.85	90.00	359.63	8770.00	4.36	-0.07	10.00	180.00	4.36	
6	13444.85	90.00	359.63	8770.00	4304.27	-27.84	0.00	0.00	4304.36	PBHL #2H (Cottontail)

Plan: Plan #1 (#2H/Original Hole)
Created By: Michael Cabrera Date: 13:06, July 30 2015

DEVON ENERGY

Eddy Co., NM
Cottontail 16 State Com
#2H

Original Hole

Plan: Plan #1

Standard Planning Report

30 July, 2015

Precision Drilling Corporation

Planning Report

Database:	Compass_US	**Local Co-ordinate Reference:**	Well #2H
Company:	DEVON ENERGY	**TVD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Project:	Eddy Co., NM	**MD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Site:	Cottontail 16 State Com	**North Reference:**	Grid
Well:	#2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Project	Eddy Co., NM		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Cottontail 16 State Com				
Site Position:		**Northing:**	409,239.18 usft	**Latitude:**	32° 7' 28.534 N
From:	Map	**Easting:**	649,791.13 usft	**Longitude:**	103° 58' 58.785 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.19 °

Well	#2H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	409,239.18 usft	**Latitude:**	32° 7' 28.534 N
	+E/-W	0.00 usft	**Easting:**	649,791.13 usft	**Longitude:**	103° 58' 58.785 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,022.00 usft

Wellbore	Original Hole				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	08/15/15	7.33	59.93	48,026

Design	Plan #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	359.63	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,589.00	0.00	0.00	4,589.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,255.88	10.00	179.63	5,252.50	-58.07	0.37	1.50	1.50	0.00	179.63	
8,144.82	10.00	179.63	8,097.52	-559.88	3.58	0.00	0.00	0.00	0.00	
9,144.85	90.00	359.63	8,770.00	4.36	-0.07	10.00	8.00	18.00	180.00	
13,444.85	90.00	359.63	8,770.00	4,304.27	-27.84	0.00	0.00	0.00	0.00	PBHL #2H (Cottont

Precision Drilling Corporation

Planning Report

Database:	Compass_US	**Local Co-ordinate Reference:**	Well #2H
Company:	DEVON ENERGY	**TVD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Project:	Eddy Co., NM	**MD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Site:	Cottontail 16 State Com	**North Reference:**	Grid
Well:	#2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface #2H (Cottontail)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,589.00	0.00	0.00	4,589.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.17	179.63	4,600.00	-0.02	0.00	-0.02	1.50	1.50	0.00
4,700.00	1.67	179.63	4,699.98	-1.61	0.01	-1.61	1.50	1.50	0.00
4,800.00	3.17	179.63	4,799.89	-5.83	0.04	-5.83	1.50	1.50	0.00
4,900.00	4.67	179.63	4,899.66	-12.65	0.08	-12.65	1.50	1.50	0.00
5,000.00	6.17	179.63	4,999.21	-22.09	0.14	-22.09	1.50	1.50	0.00
5,100.00	7.67	179.63	5,098.48	-34.13	0.22	-34.13	1.50	1.50	0.00

Database:	Compass_US	**Local Co-ordinate Reference:**	Well #2H
Company:	DEVON ENERGY	**TVD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Project:	Eddy Co., NM	**MD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Site:	Cottontail 16 State Com	**North Reference:**	Grid
Well:	#2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,200.00	9.17	179.63	5,197.40	-48.76	0.31	-48.76	1.50	1.50	0.00
5,255.88	10.00	179.63	5,252.50	-58.07	0.37	-58.07	1.50	1.50	0.00
5,300.00	10.00	179.63	5,295.95	-65.73	0.42	-65.73	0.00	0.00	0.00
5,400.00	10.00	179.63	5,394.43	-83.10	0.53	-83.10	0.00	0.00	0.00
5,500.00	10.00	179.63	5,492.91	-100.47	0.64	-100.47	0.00	0.00	0.00
5,600.00	10.00	179.63	5,591.39	-117.84	0.75	-117.84	0.00	0.00	0.00
5,700.00	10.00	179.63	5,689.87	-135.21	0.86	-135.21	0.00	0.00	0.00
5,800.00	10.00	179.63	5,788.35	-152.58	0.98	-152.58	0.00	0.00	0.00
5,900.00	10.00	179.63	5,886.83	-169.95	1.09	-169.95	0.00	0.00	0.00
6,000.00	10.00	179.63	5,985.31	-187.32	1.20	-187.32	0.00	0.00	0.00
6,100.00	10.00	179.63	6,083.78	-204.69	1.31	-204.69	0.00	0.00	0.00
6,200.00	10.00	179.63	6,182.26	-222.06	1.42	-222.06	0.00	0.00	0.00
6,300.00	10.00	179.63	6,280.74	-239.43	1.53	-239.44	0.00	0.00	0.00
6,400.00	10.00	179.63	6,379.22	-256.80	1.64	-256.81	0.00	0.00	0.00
6,500.00	10.00	179.63	6,477.70	-274.17	1.75	-274.18	0.00	0.00	0.00
6,600.00	10.00	179.63	6,576.18	-291.54	1.86	-291.55	0.00	0.00	0.00
6,700.00	10.00	179.63	6,674.66	-308.91	1.97	-308.92	0.00	0.00	0.00
6,800.00	10.00	179.63	6,773.14	-326.28	2.09	-326.29	0.00	0.00	0.00
6,900.00	10.00	179.63	6,871.62	-343.65	2.20	-343.66	0.00	0.00	0.00
7,000.00	10.00	179.63	6,970.10	-361.02	2.31	-361.03	0.00	0.00	0.00
7,100.00	10.00	179.63	7,068.58	-378.39	2.42	-378.40	0.00	0.00	0.00
7,200.00	10.00	179.63	7,167.06	-395.76	2.53	-395.77	0.00	0.00	0.00
7,300.00	10.00	179.63	7,265.54	-413.13	2.64	-413.14	0.00	0.00	0.00
7,400.00	10.00	179.63	7,364.02	-430.50	2.75	-430.51	0.00	0.00	0.00
7,500.00	10.00	179.63	7,462.50	-447.87	2.86	-447.88	0.00	0.00	0.00
7,600.00	10.00	179.63	7,560.98	-465.24	2.97	-465.25	0.00	0.00	0.00
7,700.00	10.00	179.63	7,659.46	-482.61	3.09	-482.62	0.00	0.00	0.00
7,800.00	10.00	179.63	7,757.94	-499.98	3.20	-499.99	0.00	0.00	0.00
7,900.00	10.00	179.63	7,856.42	-517.35	3.31	-517.36	0.00	0.00	0.00
8,000.00	10.00	179.63	7,954.90	-534.72	3.42	-534.73	0.00	0.00	0.00
8,100.00	10.00	179.63	8,053.38	-552.09	3.53	-552.10	0.00	0.00	0.00
8,144.82	10.00	179.63	8,097.52	-559.88	3.58	-559.89	0.00	0.00	0.00
8,150.00	9.49	179.63	8,102.62	-560.75	3.58	-560.76	10.00	-10.00	0.00
8,200.00	4.49	179.64	8,152.24	-566.83	3.62	-566.84	10.00	-10.00	0.01
8,250.00	0.51	359.56	8,202.19	-568.56	3.63	-568.57	10.00	-7.94	359.84
8,300.00	5.51	359.62	8,252.11	-565.93	3.62	-565.95	10.00	10.00	0.13
8,350.00	10.51	359.63	8,301.60	-558.96	3.57	-558.98	10.00	10.00	0.01
8,400.00	15.51	359.63	8,350.30	-547.71	3.50	-547.72	10.00	10.00	0.00
8,450.00	20.51	359.63	8,397.84	-532.25	3.40	-532.26	10.00	10.00	0.00
8,500.00	25.51	359.63	8,443.84	-512.71	3.27	-512.72	10.00	10.00	0.00
8,550.00	30.51	359.63	8,487.97	-489.23	3.12	-489.24	10.00	10.00	0.00
8,600.00	35.51	359.63	8,529.88	-462.00	2.94	-462.01	10.00	10.00	0.00
8,650.00	40.51	359.63	8,569.26	-431.21	2.74	-431.22	10.00	10.00	0.00
8,700.00	45.51	359.63	8,605.81	-397.12	2.52	-397.12	10.00	10.00	0.00
8,750.00	50.51	359.63	8,639.25	-359.96	2.28	-359.97	10.00	10.00	0.00
8,800.00	55.51	359.63	8,669.32	-320.04	2.02	-320.04	10.00	10.00	0.00
8,832.46	58.76	359.63	8,686.93	-292.78	1.85	-292.78	10.00	10.00	0.00
LP #2H (Cottontail)									
8,850.00	60.51	359.63	8,695.79	-277.64	1.75	-277.65	10.00	10.00	0.00
8,900.00	65.51	359.63	8,718.47	-233.10	1.46	-233.11	10.00	10.00	0.00
8,950.00	70.51	359.63	8,737.19	-186.75	1.16	-186.76	10.00	10.00	0.00
9,000.00	75.51	359.63	8,751.79	-138.95	0.85	-138.95	10.00	10.00	0.00
9,050.00	80.51	359.63	8,762.17	-90.06	0.54	-90.06	10.00	10.00	0.00

Precision Drilling Corporation

Planning Report

Database:	Compass_US	**Local Co-ordinate Reference:**	Well #2H
Company:	DEVON ENERGY	**TVD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Project:	Eddy Co., NM	**MD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Site:	Cottontail 16 State Com	**North Reference:**	Grid
Well:	#2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,100.00	85.51	359.63	8,768.25	-40.44	0.22	-40.44	10.00	10.00	0.00
9,144.85	90.00	359.63	8,770.00	4.36	-0.07	4.36	10.00	10.00	0.00
9,200.00	90.00	359.63	8,770.00	59.51	-0.43	59.51	0.00	0.00	0.00
9,300.00	90.00	359.63	8,770.00	159.51	-1.07	159.51	0.00	0.00	0.00
9,400.00	90.00	359.63	8,770.00	259.50	-1.72	259.51	0.00	0.00	0.00
9,500.00	90.00	359.63	8,770.00	359.50	-2.37	359.51	0.00	0.00	0.00
9,600.00	90.00	359.63	8,770.00	459.50	-3.01	459.51	0.00	0.00	0.00
9,700.00	90.00	359.63	8,770.00	559.50	-3.66	559.51	0.00	0.00	0.00
9,800.00	90.00	359.63	8,770.00	659.50	-4.30	659.51	0.00	0.00	0.00
9,900.00	90.00	359.63	8,770.00	759.49	-4.95	759.51	0.00	0.00	0.00
10,000.00	90.00	359.63	8,770.00	859.49	-5.59	859.51	0.00	0.00	0.00
10,100.00	90.00	359.63	8,770.00	959.49	-6.24	959.51	0.00	0.00	0.00
10,200.00	90.00	359.63	8,770.00	1,059.49	-6.89	1,059.51	0.00	0.00	0.00
10,300.00	90.00	359.63	8,770.00	1,159.49	-7.53	1,159.51	0.00	0.00	0.00
10,400.00	90.00	359.63	8,770.00	1,259.48	-8.18	1,259.51	0.00	0.00	0.00
10,500.00	90.00	359.63	8,770.00	1,359.48	-8.82	1,359.51	0.00	0.00	0.00
10,600.00	90.00	359.63	8,770.00	1,459.48	-9.47	1,459.51	0.00	0.00	0.00
10,700.00	90.00	359.63	8,770.00	1,559.48	-10.11	1,559.51	0.00	0.00	0.00
10,800.00	90.00	359.63	8,770.00	1,659.47	-10.76	1,659.51	0.00	0.00	0.00
10,900.00	90.00	359.63	8,770.00	1,759.47	-11.41	1,759.51	0.00	0.00	0.00
11,000.00	90.00	359.63	8,770.00	1,859.47	-12.05	1,859.51	0.00	0.00	0.00
11,100.00	90.00	359.63	8,770.00	1,959.47	-12.70	1,959.51	0.00	0.00	0.00
11,200.00	90.00	359.63	8,770.00	2,059.47	-13.34	2,059.51	0.00	0.00	0.00
11,300.00	90.00	359.63	8,770.00	2,159.46	-13.99	2,159.51	0.00	0.00	0.00
11,400.00	90.00	359.63	8,770.00	2,259.46	-14.64	2,259.51	0.00	0.00	0.00
11,500.00	90.00	359.63	8,770.00	2,359.46	-15.28	2,359.51	0.00	0.00	0.00
11,600.00	90.00	359.63	8,770.00	2,459.46	-15.93	2,459.51	0.00	0.00	0.00
11,700.00	90.00	359.63	8,770.00	2,559.46	-16.57	2,559.51	0.00	0.00	0.00
11,800.00	90.00	359.63	8,770.00	2,659.45	-17.22	2,659.51	0.00	0.00	0.00
11,900.00	90.00	359.63	8,770.00	2,759.45	-17.86	2,759.51	0.00	0.00	0.00
12,000.00	90.00	359.63	8,770.00	2,859.45	-18.51	2,859.51	0.00	0.00	0.00
12,100.00	90.00	359.63	8,770.00	2,959.45	-19.16	2,959.51	0.00	0.00	0.00
12,200.00	90.00	359.63	8,770.00	3,059.45	-19.80	3,059.51	0.00	0.00	0.00
12,300.00	90.00	359.63	8,770.00	3,159.44	-20.45	3,159.51	0.00	0.00	0.00
12,400.00	90.00	359.63	8,770.00	3,259.44	-21.09	3,259.51	0.00	0.00	0.00
12,500.00	90.00	359.63	8,770.00	3,359.44	-21.74	3,359.51	0.00	0.00	0.00
12,600.00	90.00	359.63	8,770.00	3,459.44	-22.38	3,459.51	0.00	0.00	0.00
12,700.00	90.00	359.63	8,770.00	3,559.44	-23.03	3,559.51	0.00	0.00	0.00
12,800.00	90.00	359.63	8,770.00	3,659.43	-23.68	3,659.51	0.00	0.00	0.00
12,900.00	90.00	359.63	8,770.00	3,759.43	-24.32	3,759.51	0.00	0.00	0.00
13,000.00	90.00	359.63	8,770.00	3,859.43	-24.97	3,859.51	0.00	0.00	0.00
13,100.00	90.00	359.63	8,770.00	3,959.43	-25.61	3,959.51	0.00	0.00	0.00
13,200.00	90.00	359.63	8,770.00	4,059.42	-26.26	4,059.51	0.00	0.00	0.00
13,300.00	90.00	359.63	8,770.00	4,159.42	-26.90	4,159.51	0.00	0.00	0.00
13,400.00	90.00	359.63	8,770.00	4,259.42	-27.55	4,259.51	0.00	0.00	0.00
13,444.85	90.00	359.63	8,770.00	4,304.27	-27.84	4,304.36	0.00	0.00	0.00
PBHL #2H (Cottontail)									

Precision Drilling Corporation

Planning Report

Database:	Compass_US	**Local Co-ordinate Reference:**	Well #2H
Company:	DEVON ENERGY	**TVD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Project:	Eddy Co., NM	**MD Reference:**	3022'GL+25'KB @ 3047.00usft (PD608)
Site:	Cottontail 16 State Com	**North Reference:**	Grid
Well:	#2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Surface #2H (Cottonta - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	409,239.18	649,791.13	32° 7' 28.534 N	103° 58' 58.785 W
LP #2H (Cottontail) - plan misses target center by 97.94usft at 8832.46usft MD (8686.93 TVD, -292.78 N, 1.85 E) - Point	0.00	0.00	8,770.00	-344.66	2.21	408,894.52	649,793.35	32° 7' 25.123 N	103° 58' 58.772 W
PBHL #2H (Cottontail - plan hits target center - Point	0.00	0.00	8,770.00	4,304.27	-27.84	413,543.45	649,763.29	32° 8' 11.130 N	103° 58' 58.946 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
630.00	630.00	Rustler		0.00	
1,375.00	1,375.00	Top of Salt		0.00	
2,890.00	2,890.00	Base of Salt		0.00	
2,940.00	2,940.00	Delaware		0.00	
3,885.00	3,885.00	Cherry Canyon		0.00	
5,197.57	5,195.00	Brushy Canyon		0.00	
6,872.97	6,845.00	1st Bone Spring Lime		0.00	
7,761.47	7,720.00	1st Bone Spring Sand		0.00	
8,066.10	8,020.00	2nd Bone Spring Lime		0.00	
8,650.97	8,570.00	2nd Bone Spring Sand		0.00	
8,926.78	8,729.00	Target Top		0.00	