

ARTESIA DISTRICT

Revised August 1, 2011

☐ AMENDED REPORT

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

OCT 16 2014

RECEIVED

¹ API Number 30-015-152734	² Pool Code 3713	³ Pool Name Avalon; Bone Spring, East
⁴ Property Code 313798	⁵ Property Name CEDAR 11 STATE	⁶ Well Number 1H
⁷ OGRID No. 6137	⁸ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	⁹ Elevation 3281.0

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
L	11	21 S	27 E		1345	SOUTH	200	WEST	EDDY

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	Country
1	11	21 S	27 E		2055	SOUTH	330	EAST	EDDY

¹² Dedicated Acres 160.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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 Ronda Good Date 10/15/2014

Linda Good

Printed Name _____

linda.good@dvu.com

E-mail Address

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 10, 2014

Date of Survey _____

(12797) 42

10000



[Handwritten signature]

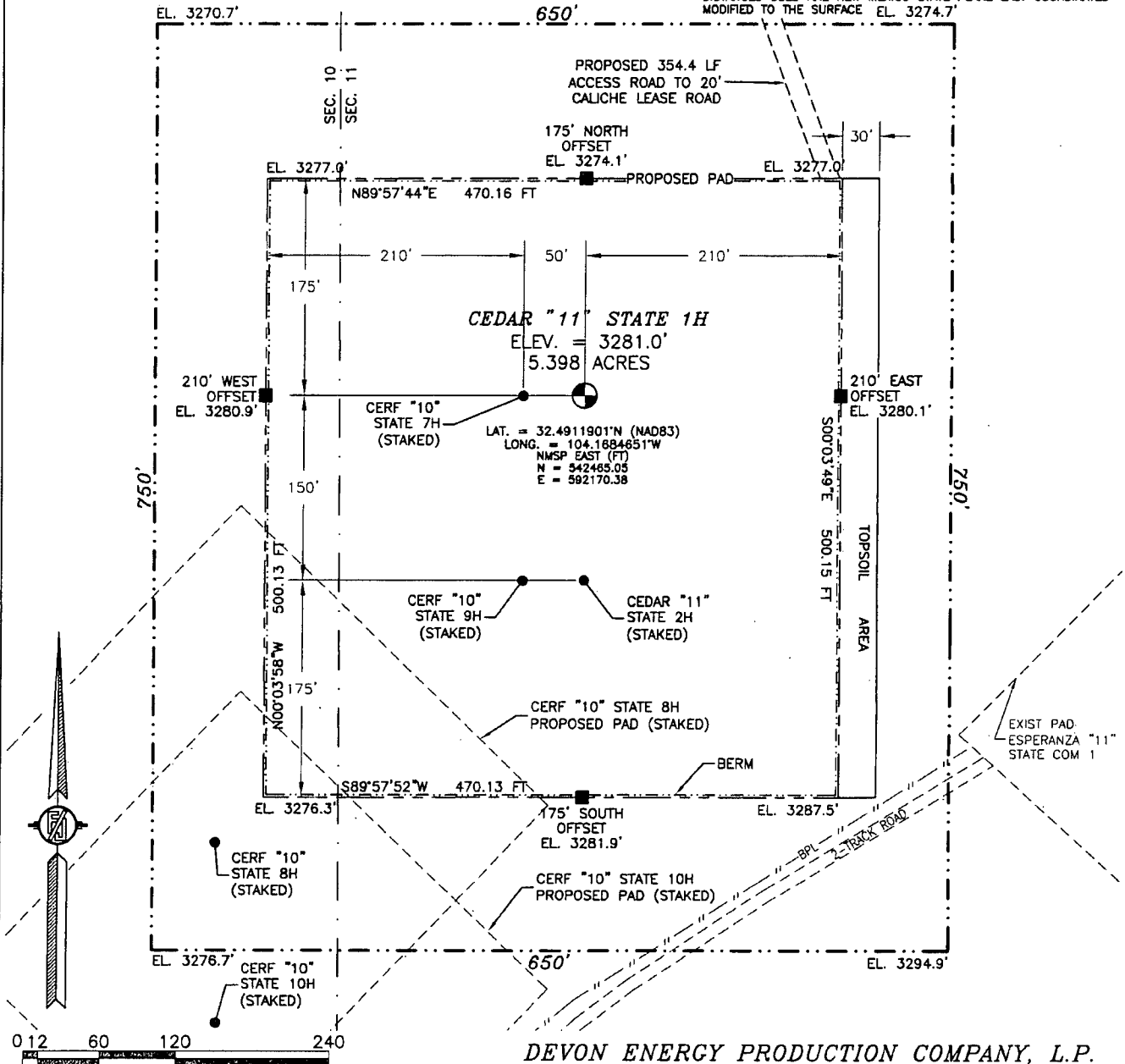
Signature and Seal of Professional Surveyor:

Certificate Number: ~~7~~ FILIMON F. JARAMILLO, PLS 12707

SURVEY NO. 3076

SECTION 11, TOWNSHIP 21 SOUTH, RANGE 27 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 EL. 3274.7'



DEVON ENERGY PRODUCTION COMPANY, L.P.
CEDAR "11" STATE 1H
LOCATED 1345 FT. FROM THE SOUTH LINE
AND 200 FT. FROM THE WEST LINE OF
SECTION 11, TOWNSHIP 21 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JULY 10, 2014

SURVEY NO. 3076

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

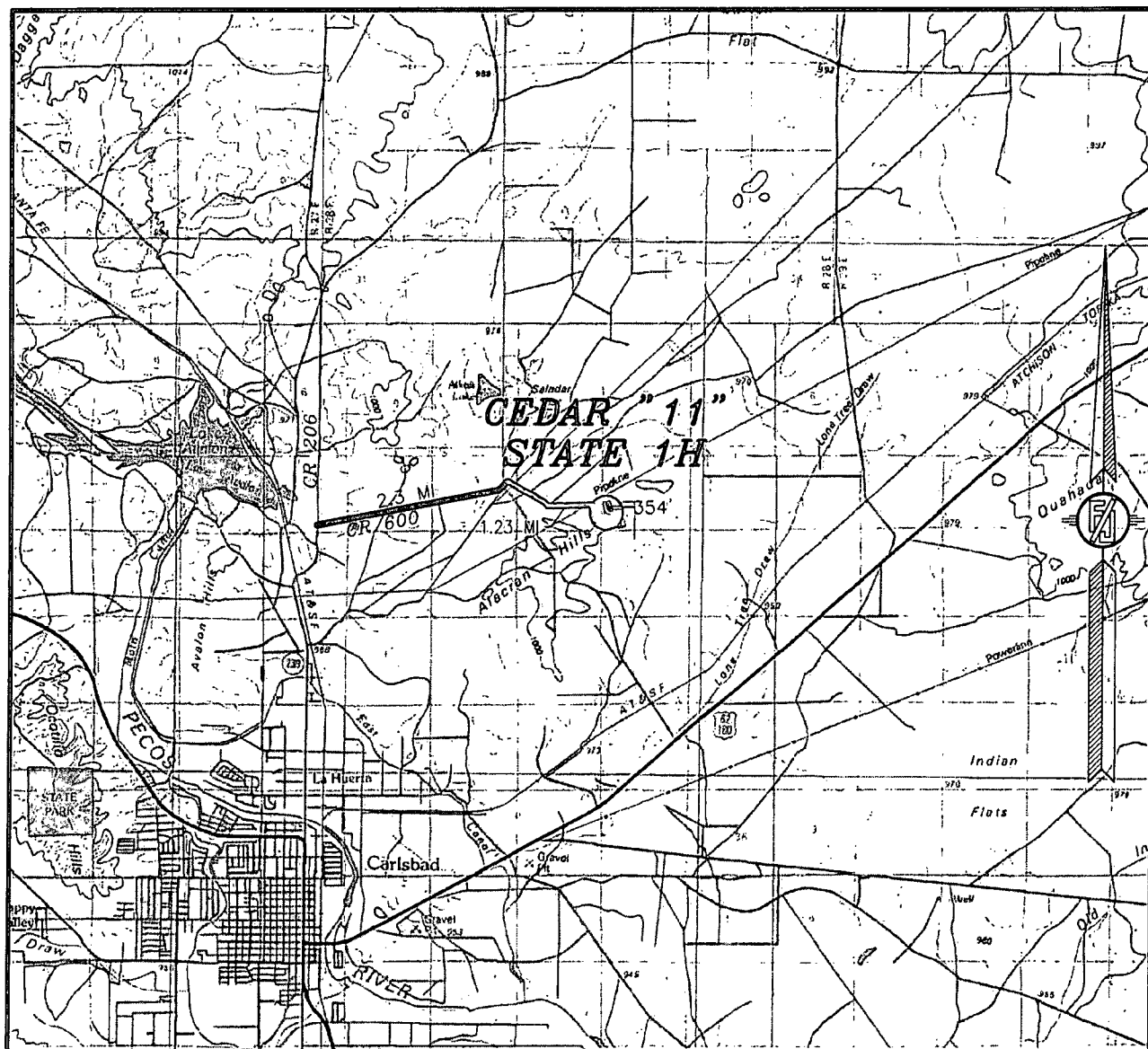
DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF CR 206 (ILLINOIS CAMP ROAD) AND CR 600 (RAINS ROAD) GO EAST ON CR 600 2.3 MILES PAST THE RAMBO BOOSTER STATION TO A CALICHE LEASE ROAD ON RIGHT, ACROSS FROM BORROW PIT, GO EAST 1.23 MILES TO TOP OF RIDGE, FOLLOW FLAGS ON RIGHT 354' TO NORTHEAST CORNER OF PAD.

NOT TO SCALE

JULY 10, 2014

SURVEY NO. 3076
CARLSBAD, NEW MEXICO

SECTION 11, TOWNSHIP 21 SOUTH, RANGE 27 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.

CEDAR "11" STATE 1H

LOCATED 1345 FT. FROM THE SOUTH LINE
AND 200 FT. FROM THE WEST LINE OF
SECTION 11, TOWNSHIP 21 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

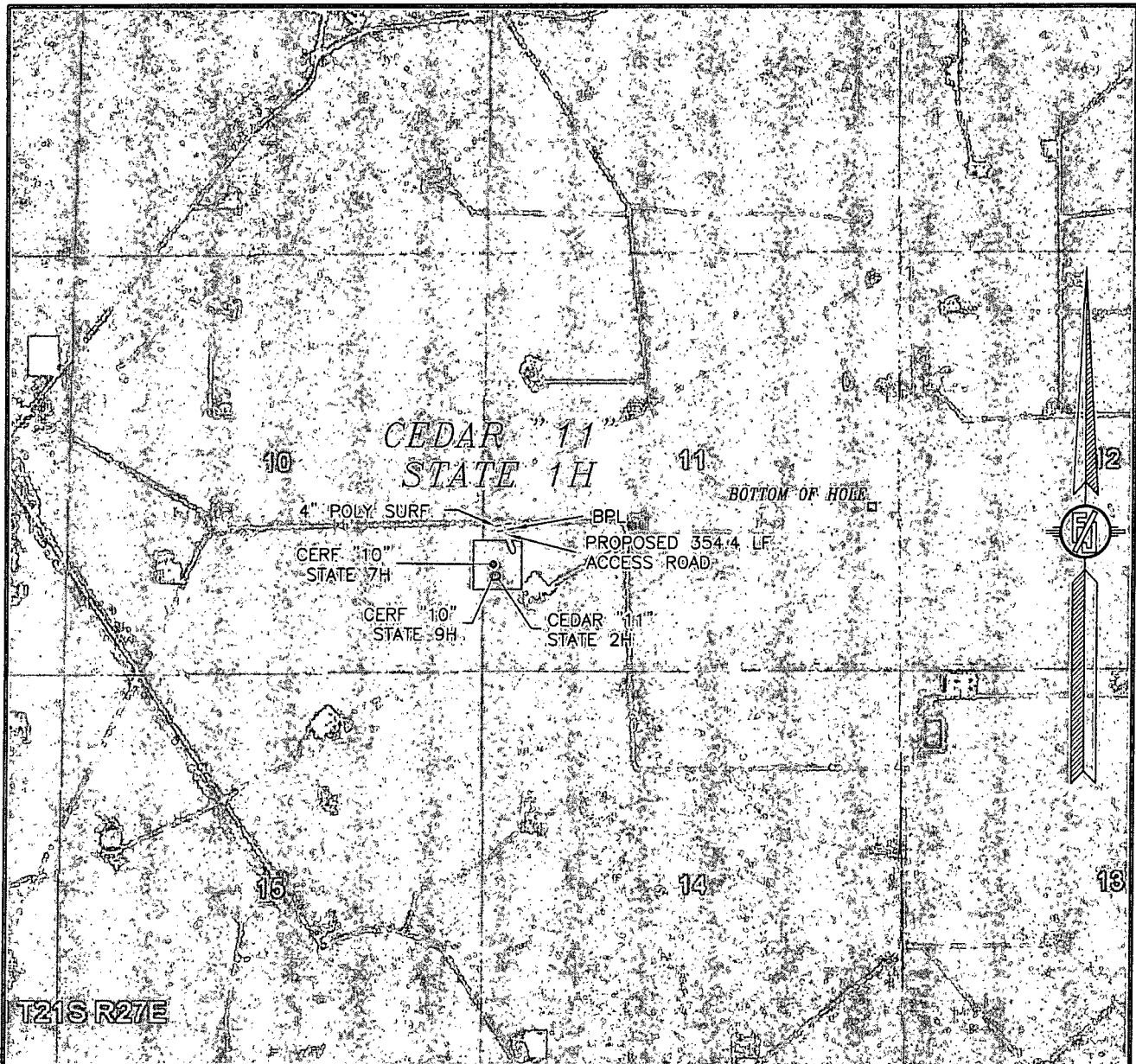
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JULY 10, 2014

SURVEY NO. 3076

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

SECTION 11, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 AERIAL PHOTO



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 APRIL 2013

DEVON ENERGY PRODUCTION COMPANY, L.P.

CEDAR "11" STATE 1H

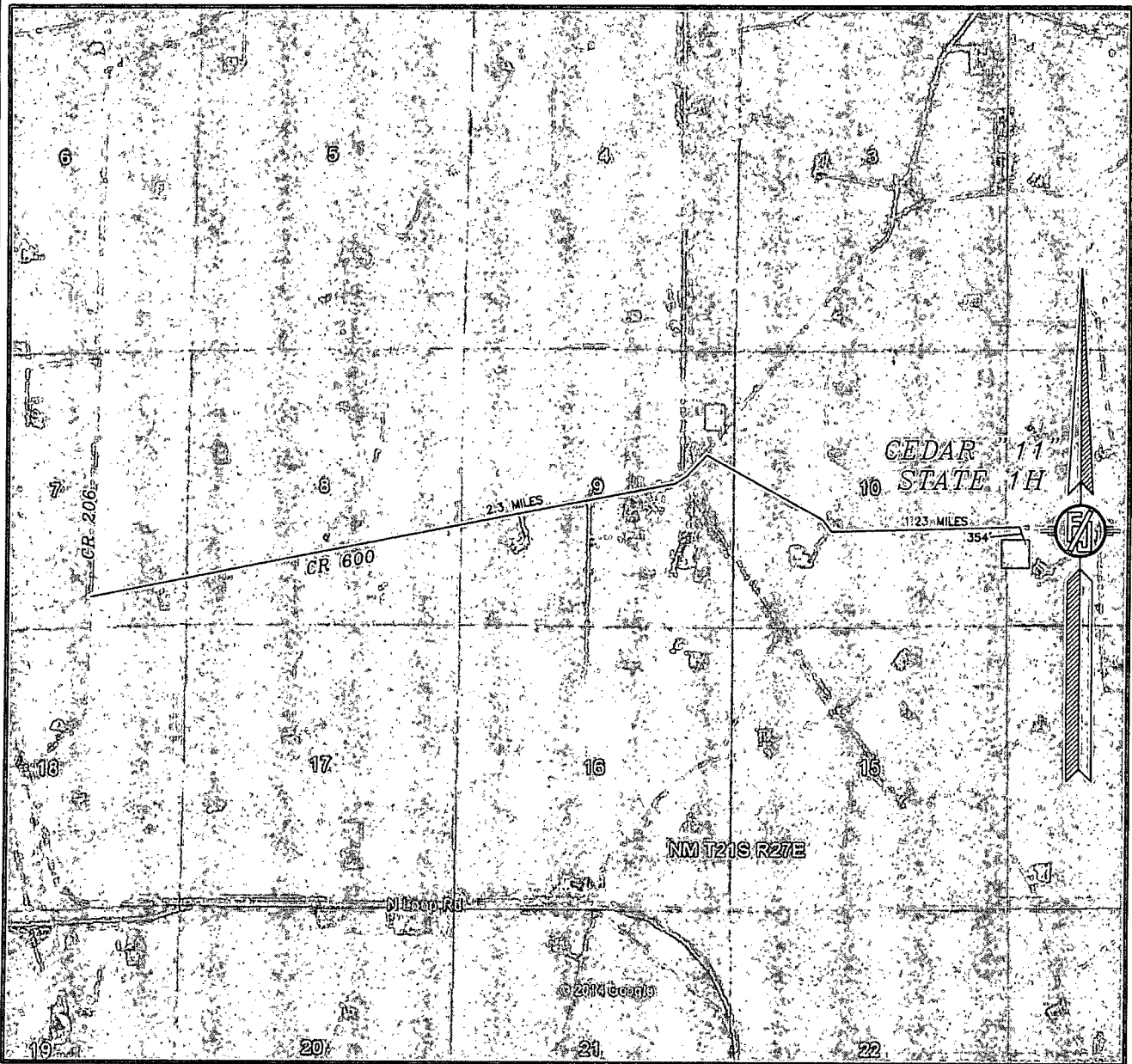
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JULY 10, 2014

SURVEY NO. 3076

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

SECTION 11, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
APRIL 2013

DEVON ENERGY PRODUCTION COMPANY, L.P.

CEDAR "11" STATE 1H

LOCATED 1345 FT. FROM THE SOUTH LINE
AND 200 FT. FROM THE WEST LINE OF
SECTION 11, TOWNSHIP 21 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JULY 10, 2014

SURVEY NO. 3076

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

Devon Energy, Cedar 11 State 1H

1. Geologic Formations

TVD of target	7,775'	Pilot hole depth	N/A
MD at TD:	12,396'	Deepest expected fresh water:	

Reef

Formation	Depth (TVD) from KB)	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	Surface	water at 120'	
Top Salt	60	Barren	
Base Salt	480	Barren	
Tansil	510	Barren	
Yates	540	Barren	
Seven Rivers	670	Barren	
Capitan	840	Barren	
Base of Capitan	2645	Barren	
Delaware	2880	Oil	
Lower Brushy Canyon	5230	Oil	
Bone Spring Lime	5410	Oil	
Avalon Sand	5560	Oil	
1st Bone Spring Sand	6598	Oil	
2nd Bone Spring Lime	6844	Oil	
2nd Bone Spring Sand	7300	Oil	

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

Devon Energy, Cedar 11 State 1H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
26"	0	120'	20"	94	J55	BTC	8.68	35.22	124.29
17.5"	0	800'	13.375"	48	H40	STC	1.85	4.16	8.39
12.25"	0	2,840'	9.625"	40	J55	LTC	1.93	2.97	4.58
8.75"	0	6,966'	5.5"	17	HCP-110	BTC	2.63	3.26	4.80
8.75"	6,966'	12,396'	5.5"	17	HCP-110	BTC	2.36	2.92	6.15
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?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
Is well within the designated 4 string boundary.	Y
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd 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 2 nd 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?	

Devon Energy, Cedar 11 State 1H

3. Cementing Program

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	500# Comp. Strength (hours)	Slurry Description
20" Surf.	340	14.8	6.32	1.33	7	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
13-3/8" 1 st Inter.	750	14.8	6.32	1.33	7	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" 2 nd Inter. Single Stage Option	530	12.9	9.81	1.85	17	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	330	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" 2 nd Inter. Two Stage Option	450	12.9	9.81	1.85	17	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	220	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
	DV/ECP Tool 850'					
	230	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod. Single Stage	680	10.4	3.17	16.95	16	Lead: Tuned Light ® + 0.125 lbs/sack Poly-E-Flake
	1350	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 Option	360	12.5	10.86	1.96	30	1 st Lead: (65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake
	1350	14.5	5.31	1.2	25	1 st 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/ECP Tool 5000'					
	500	11.9	12.89	2.26	22	2 nd 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
	120	14.8	6.32	1.33	6	2 nd 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.

Devon Energy, Cedar 11 State 1H

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	75%
Intermediate – 2 Stage Option	1 st Stage = 850' / 2 nd Stage = 0'	75%
Production	600'	25%
Production – 2 Stage Option	1 st Stage = 5000' / 2 nd Stage = 600'	25%

4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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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 3M
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure 3M
			Blind Ram		
			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

Devon Energy, Cedar 11 State 1H

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 (FMC Uni-head). 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 FMC's representatives. - If the welding is performed by a third party, the FMC's representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. - FMC representative will install the test plug for the initial BOP test. - FMC 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 FMC Uni-head 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.

Devon Energy, Cedar 11 State 1H

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 FMC Uni-head.

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	800'	FW Gel	8.6-8.8	28-34	N/C
500'	2,840'	Saturated Brine	10.0-10.2	28-34	N/C
2,840'	12,396'	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
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

Devon Energy, Cedar 11 State 1H

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3499 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	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? No. (If yes, describe.)

Will be pre-setting casing? No. (If yes, describe.)

Attachments

☒ Directional Plan

☐ Other, describe

5D Plan Report**Devon Energy**

Field Name: *Eddy Co, NM (Nad 83 NME)*
Site Name: *Cedar 11 State 1H, Cerf 10 State 7H Pad*
Well Name: *Cedar 11 State 1H*
Plan: *P1:V1*

15 September 2014



Cedar 11 State 1H

Field Name Eddy Co, NM (Nad 83 NME)	Map Units : US ft		Company Name : Devon Energy	
	Vertical Reference Datum (VRD) : Mean Sea Level			
Projected Coordinate System : NAD83 / New Mexico East (ftUS)				
Comment :				
Site Name Cedar 11 State 1H, Cerf 10 State 7H Pad	Units : US ft	North Reference : Grid	Convergence Angle : 0.09	
	Position	Northing : 542465.05 US ft	Latitude : 32° 29' 28.28"	
		Easting : 592170.38 US ft	Longitude : -104° 10' 6.47"	
	Elevation above Mean Sea Level: 3281.00 US ft			
Comment :				
Slot Name Cedar 11 State 1H	Position (Offsets relative to Site Centre)			
	+N / -S : 0.00 US ft	Northing : 542465.05 US ft	Latitude : 32° 29' 28.28"	
	+E / -W : 0.00 US ft	Easting : 592170.38 US ft	Longitude : -104° 10' 6.47"	
	Slot TVD Reference : Ground Elevation			
Elevation above Mean Sea Level : 3281.00 US ft				
Comment :				
Well Name Cedar 11 State 1H	Type : Main well		UWI :	Plan : P1:V1
	Rig Height <i>Kelly Bushing</i> : 25.00 US ft		Comment :	
	Relative to Mean Sea Level: 3306.00 US ft			
	Closure Distance : 4861.39 US ft		Closure Azimuth : 81.2562°	
	Vertical Section (Position of Origin Relative to Slot)			
	+N / -S : 0.00 US ft		+E / -W : 0.00 US ft	Az : 90.00°
	Magnetic Parameters			
	Model : BGGM	Field Strength : 48324.2nT	Dec : 7.62°	Dip : 60.23° Date : 15/Jan/2015

Target Set

Name : Cedar 11 State 1H **Number of Targets :** 1

Comment :

Target Name: PBHL 1H Shape: Cuboid	Position (Relative to Slot centre)			
	+N / -S : 739.01 US ft	Northing : 543204.06 US ft	Latitude : 32° 29' 35.52"	
	+E / -W : 4804.89 US ft	Easting : 596975.27 US ft	Longitude : -104° 9' 10.36"	
	TVD (Kelly Bushing) : 7775.00 US ft			
Orientation Azimuth : 0.00°		Inclination : 0.00°		
Dimensions Length : 20.00 US ft		Breadth : 20.00 US ft	Height : 20.00 US ft	

Well path created using minimum curvature.

5D Plan Report

Salient Points (Relative to Slot centre, TVD relative to Kelly Bushing)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	B. Rate (°/100 US ft)	T. Rate (°/100 US ft)	T. Face (°)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3090.00	0.00	0.00	3090.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Nudge
4090.00	10.00	0.00	4084.93	87.05	0.00	0.00	1.00	1.00	0.00	0.00	Hold
7264.06	10.00	0.00	7210.77	638.21	0.00	0.00	0.00	0.00	0.00	0.00	KOP
8164.04	90.00	89.98	7775.00	737.86	572.93	572.93	10.00	8.89	10.00	89.98	LP
12396.00	90.00	89.98	7775.00	739.01	4804.89	4804.89	0.00	0.00	0.00	0.00	PBHL 1H

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)		Comment
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	542465.05	592170.38		
3090.00	0.00	0.00	3090.00	0.00	0.00	0.00	0.00	542465.05	592170.38		Nudge
3100.00	0.10	0.00	3100.00	0.01	0.00	0.00	1.00	542465.06	592170.38		
3200.00	1.10	0.00	3199.99	1.06	0.00	0.00	1.00	542466.11	592170.38		
3300.00	2.10	0.00	3299.95	3.85	0.00	0.00	1.00	542468.90	592170.38		
3400.00	3.10	0.00	3399.85	8.38	0.00	0.00	1.00	542473.43	592170.38		
3500.00	4.10	0.00	3499.65	14.66	0.00	0.00	1.00	542479.71	592170.38		
3600.00	5.10	0.00	3599.33	22.68	0.00	0.00	1.00	542487.73	592170.38		
3700.00	6.10	0.00	3698.85	32.44	0.00	0.00	1.00	542497.49	592170.38		
3800.00	7.10	0.00	3798.18	43.93	0.00	0.00	1.00	542508.98	592170.38		
3900.00	8.10	0.00	3897.30	57.16	0.00	0.00	1.00	542522.21	592170.38		
4000.00	9.10	0.00	3996.18	72.11	0.00	0.00	1.00	542537.16	592170.38		
4090.00	10.00	0.00	4084.93	87.05	0.00	0.00	1.00	542552.10	592170.38		Hold
4100.00	10.00	0.00	4094.78	88.78	0.00	0.00	0.00	542553.83	592170.38		
4200.00	10.00	0.00	4193.26	106.15	0.00	0.00	0.00	542571.20	592170.38		
4300.00	10.00	0.00	4291.74	123.51	0.00	0.00	0.00	542588.56	592170.38		
4400.00	10.00	0.00	4390.22	140.88	0.00	0.00	0.00	542605.93	592170.38		
4500.00	10.00	0.00	4488.70	158.24	0.00	0.00	0.00	542623.29	592170.38		
4600.00	10.00	0.00	4587.18	175.61	0.00	0.00	0.00	542640.66	592170.38		
4700.00	10.00	0.00	4685.66	192.97	0.00	0.00	0.00	542658.02	592170.38		
4800.00	10.00	0.00	4784.14	210.34	0.00	0.00	0.00	542675.39	592170.38		
4900.00	10.00	0.00	4882.63	227.70	0.00	0.00	0.00	542692.75	592170.38		
5000.00	10.00	0.00	4981.11	245.07	0.00	0.00	0.00	542710.12	592170.38		
5100.00	10.00	0.00	5079.59	262.43	0.00	0.00	0.00	542727.48	592170.38		
5200.00	10.00	0.00	5178.07	279.79	0.00	0.00	0.00	542744.84	592170.38		
5300.00	10.00	0.00	5276.55	297.16	0.00	0.00	0.00	542762.21	592170.38		
5400.00	10.00	0.00	5375.03	314.52	0.00	0.00	0.00	542779.57	592170.38		
5500.00	10.00	0.00	5473.51	331.89	0.00	0.00	0.00	542796.94	592170.38		
5600.00	10.00	0.00	5571.99	349.25	0.00	0.00	0.00	542814.30	592170.38		
5700.00	10.00	0.00	5670.47	366.62	0.00	0.00	0.00	542831.67	592170.38		
5800.00	10.00	0.00	5768.95	383.98	0.00	0.00	0.00	542849.03	592170.38		
5900.00	10.00	0.00	5867.43	401.35	0.00	0.00	0.00	542866.40	592170.38		
6000.00	10.00	0.00	5965.91	418.71	0.00	0.00	0.00	542883.76	592170.38		
6100.00	10.00	0.00	6064.39	436.08	0.00	0.00	0.00	542901.13	592170.38		
6200.00	10.00	0.00	6162.88	453.44	0.00	0.00	0.00	542918.49	592170.38		
6300.00	10.00	0.00	6261.36	470.81	0.00	0.00	0.00	542935.86	592170.38		
6400.00	10.00	0.00	6359.84	488.17	0.00	0.00	0.00	542953.22	592170.38		
6500.00	10.00	0.00	6458.32	505.54	0.00	0.00	0.00	542970.59	592170.38		
6600.00	10.00	0.00	6556.80	522.90	0.00	0.00	0.00	542987.95	592170.38		
6700.00	10.00	0.00	6655.28	540.27	0.00	0.00	0.00	543005.32	592170.38		
6800.00	10.00	0.00	6753.76	557.63	0.00	0.00	0.00	543022.68	592170.38		
6900.00	10.00	0.00	6852.24	575.00	0.00	0.00	0.00	543040.05	592170.38		
7000.00	10.00	0.00	6950.72	592.36	0.00	0.00	0.00	543057.41	592170.38		
7100.00	10.00	0.00	7049.20	609.73	0.00	0.00	0.00	543074.78	592170.38		
7200.00	10.00	0.00	7147.68	627.09	0.00	0.00	0.00	543092.14	592170.38		
7264.06	10.00	0.00	7210.77	638.21	0.00	0.00	0.00	543103.26	592170.38		KOP
7300.00	10.62	19.88	7246.14	644.45	1.13	1.13	10.00	543109.50	592171.51		
7400.00	16.82	54.31	7343.39	661.60	16.05	16.05	10.00	543126.65	592186.43		
7500.00	25.52	68.31	7436.61	678.05	47.90	47.90	10.00	543143.10	592218.28		

SD Plan Report

Interpolated Points (Relative to Slot centre, TVD relative to Kelly Bushing)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
7600.00	34.89	75.34	7522.97	693.29	95.70	95.70	10.00	543158.34	592266.08	
7700.00	44.50	79.65	7599.84	706.86	158.00	158.00	10.00	543171.91	592328.38	
7800.00	54.24	82.69	7664.89	718.35	232.90	232.90	10.00	543183.40	592403.28	
7900.00	64.03	85.06	7716.14	727.41	318.15	318.15	10.00	543192.46	592488.53	
8000.00	73.85	87.06	7752.03	733.77	411.13	411.13	10.00	543198.82	592581.51	
8100.00	83.69	88.87	7771.48	737.22	509.03	509.03	10.00	543202.27	592679.41	
8164.03	90.00	89.98	7775.00	737.86	572.93	572.93	10.00	543202.91	592743.31	LP
8200.00	90.00	89.98	7775.00	737.87	608.89	608.89	0.00	543202.92	592779.27	
8300.00	90.00	89.98	7775.00	737.90	708.89	708.89	0.00	543202.95	592879.27	
8400.00	90.00	89.98	7775.00	737.92	808.89	808.89	0.00	543202.97	592979.27	
8500.00	90.00	89.98	7775.00	737.95	908.89	908.89	0.00	543203.00	593079.27	
8600.00	90.00	89.98	7775.00	737.98	1008.89	1008.89	0.00	543203.03	593179.27	
8700.00	90.00	89.98	7775.00	738.00	1108.89	1108.89	0.00	543203.05	593279.27	
8800.00	90.00	89.98	7775.00	738.03	1208.89	1208.89	0.00	543203.08	593379.27	
8900.00	90.00	89.98	7775.00	738.06	1308.89	1308.89	0.00	543203.11	593479.27	
9000.00	90.00	89.98	7775.00	738.09	1408.89	1408.89	0.00	543203.14	593579.27	
9100.00	90.00	89.98	7775.00	738.11	1508.89	1508.89	0.00	543203.16	593679.27	
9200.00	90.00	89.98	7775.00	738.14	1608.89	1608.89	0.00	543203.19	593779.27	
9300.00	90.00	89.98	7775.00	738.17	1708.89	1708.89	0.00	543203.22	593879.27	
9400.00	90.00	89.98	7775.00	738.20	1808.89	1808.89	0.00	543203.25	593979.27	
9500.00	90.00	89.98	7775.00	738.22	1908.89	1908.89	0.00	543203.27	594079.27	
9600.00	90.00	89.98	7775.00	738.25	2008.89	2008.89	0.00	543203.30	594179.27	
9700.00	90.00	89.98	7775.00	738.28	2108.89	2108.89	0.00	543203.33	594279.27	
9800.00	90.00	89.98	7775.00	738.30	2208.89	2208.89	0.00	543203.35	594379.27	
9900.00	90.00	89.98	7775.00	738.33	2308.89	2308.89	0.00	543203.38	594479.27	
10000.00	90.00	89.98	7775.00	738.36	2408.89	2408.89	0.00	543203.41	594579.27	
10100.00	90.00	89.98	7775.00	738.39	2508.89	2508.89	0.00	543203.44	594679.27	
10200.00	90.00	89.98	7775.00	738.41	2608.89	2608.89	0.00	543203.46	594779.27	
10300.00	90.00	89.98	7775.00	738.44	2708.89	2708.89	0.00	543203.49	594879.27	
10400.00	90.00	89.98	7775.00	738.47	2808.89	2808.89	0.00	543203.52	594979.27	
10500.00	90.00	89.98	7775.00	738.49	2908.89	2908.89	0.00	543203.54	595079.27	
10600.00	90.00	89.98	7775.00	738.52	3008.89	3008.89	0.00	543203.57	595179.27	
10700.00	90.00	89.98	7775.00	738.55	3108.89	3108.89	0.00	543203.60	595279.27	
10800.00	90.00	89.98	7775.00	738.58	3208.89	3208.89	0.00	543203.63	595379.27	
10900.00	90.00	89.98	7775.00	738.60	3308.89	3308.89	0.00	543203.65	595479.27	
11000.00	90.00	89.98	7775.00	738.63	3408.89	3408.89	0.00	543203.68	595579.27	
11100.00	90.00	89.98	7775.00	738.66	3508.89	3508.89	0.00	543203.71	595679.27	
11200.00	90.00	89.98	7775.00	738.68	3608.89	3608.89	0.00	543203.73	595779.27	
11300.00	90.00	89.98	7775.00	738.71	3708.89	3708.89	0.00	543203.76	595879.27	
11400.00	90.00	89.98	7775.00	738.74	3808.89	3808.89	0.00	543203.79	595979.27	
11500.00	90.00	89.98	7775.00	738.77	3908.89	3908.89	0.00	543203.82	596079.27	
11600.00	90.00	89.98	7775.00	738.79	4008.89	4008.89	0.00	543203.84	596179.27	
11700.00	90.00	89.98	7775.00	738.82	4108.89	4108.89	0.00	543203.87	596279.27	
11800.00	90.00	89.98	7775.00	738.85	4208.89	4208.89	0.00	543203.90	596379.27	
11900.00	90.00	89.98	7775.00	738.88	4308.89	4308.89	0.00	543203.93	596479.27	
12000.00	90.00	89.98	7775.00	738.90	4408.89	4408.89	0.00	543203.95	596579.27	
12100.00	90.00	89.98	7775.00	738.93	4508.89	4508.89	0.00	543203.98	596679.27	
12200.00	90.00	89.98	7775.00	738.96	4608.89	4608.89	0.00	543204.01	596779.27	
12300.00	90.00	89.98	7775.00	738.98	4708.89	4708.89	0.00	543204.03	596879.27	
12395.99	90.00	89.98	7775.00	739.01	4804.89	4804.89	0.00	543204.06	596975.27	PBHL 1H

5D Anti-Collision Report**Devon Energy****Field Name:** *Eddy Co, NM (Nad 83 NME)***Site Name:** *Cedar 11 State 1H, Cerf 10 State 7H Pad***Well Name:** *Cedar 11 State 1H*

15 September 2014




Weatherford

Cedar 11 State 1H

Field Name Eddy Co, NM (Nad 83 NME)	Map Units : US ft			Company Name : Devon Energy		
	Vertical Reference Datum (VRD) : Mean Sea Level					
	Projected Coordinate System : NAD83 / New Mexico East (ftUS)					
	Comment :					
Site Name Cedar 11 State 1H, Cerf 10 State 7H Pad	Units : US ft	North Reference : Grid	Convergence Angle : 0.09			
	Position		Northing : 542465.05 US ft	Latitude : 32° 29' 28.28"		
		Easting : 592170.38 US ft	Longitude : -104° 10' 6.47"			
	Elevation above Mean Sea Level: 3281.00 US ft					
	Comment :					
Slot Name Cedar 11 State 1H	Position (Offsets relative to Site Centre)					
	+N / -S : 0.00 US ft	Northing : 542465.05 US ft	Latitude : 32° 29' 28.28"			
	+E / -W : 0.00 US ft	Easting : 592170.38 US ft	Longitude : -104° 10' 6.47"			
	Slot TVD Reference : Ground Elevation					
	Elevation above Mean Sea Level : 3281.00 US ft					
	Comment :					
Well Name Cedar 11 State 1H	Type : Main well		UWI :	Plan : Working Plan		
	Rig Height <i>Kelly Bushing</i> : 25.00 US ft		Comment :			
	Relative to Mean Sea Level: 3306.00 US ft					
	Closure Distance : 4861.39 US ft		Closure Azimuth : 81.2562°			
	Vertical Section (Position of Origin Relative to Slot)					
	+N / -S : 0.00 US ft	+E / -W : 0.00 US ft	Az : 90.00°			
	Magnetic Parameters					
	Model : BGGM	Field Strength : 48324.2nT	Dec : 7.62°	Dip : 60.23°	Date : 15/Jan/2015	

Collision / Uncertainty Analysis

Primary Well	Start MD (US ft)	End MD (US ft)	Collision Risk Interval	No. of Std Deviations in Error Computation
Cedar 11 State 1H (p)	0.00	12396.00	100.00	2

Secondary Well Names

Cerf 10 State 7H (p)
 Cedar 11 State 2H (p)
 Cerf 10 State 9H (p)

Anti-Collision Report Terminology

S.Minor, S.Major : Radii of the ellipse of uncertainty at the current location as seen in the along hole direction.

PHI : Angle between high-side vector and semi-minor axis

TVD Spread : Total TVD range of the ellipsoid of uncertainty at the current location

ES : Distance between the extremities of the primary and secondary uncertainty ellipsoids in the direction Cr-Cr

T.Face to Sec : Angle between the Hi-Side vector of the primary well at the current location and line of closest approach between the two wells

Separation factors calculated using Pedal Curve (Independent Uncertainty). Well path created using minimum curvature.

SD Anti-Collision Report

Anti-Collision Proximity Summary (TVD relative to Kelly Bushing)

Secondary Well Name	Pri MD (US ft)	Sec MD (US ft)	TVD (US ft)	CC (US ft)	ES (US ft)	SF	Risk
Cerf 10 State 7H (p)	2835.94	2837.24	2835.94	52.11	39.06	3.99	
Cedar 11 State 2H (p)	2798.24	2809.97	2798.24	76.43	63.12	5.74	
Cerf 10 State 9H (p)	3886.72	3903.33	3884.15	157.74	138.88	8.36	

Primary Well: Cedar 11 State 1H (p) (TVD Relative to Kelly Bushing; All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	269.67	0.00	0.00	Cerf 10 State 7H (p)	50.01	49.45	89.34	
100.00	100.00	269.67	0.11	0.11	Cerf 10 State 7H (p)	50.01	49.24	64.52	
200.00	200.00	269.67	0.34	0.34	Cerf 10 State 7H (p)	50.01	48.79	40.93	
300.00	300.00	269.67	0.56	0.56	Cerf 10 State 7H (p)	50.01	48.34	29.93	
400.00	400.00	269.67	0.79	0.79	Cerf 10 State 7H (p)	50.01	47.89	23.59	
500.00	500.00	269.67	1.01	1.01	Cerf 10 State 7H (p)	50.01	47.44	19.46	
600.00	600.00	269.67	1.24	1.24	Cerf 10 State 7H (p)	50.01	46.99	16.56	
700.00	700.00	269.67	1.46	1.46	Cerf 10 State 7H (p)	50.01	46.54	14.42	
800.00	800.00	269.67	1.69	1.69	Cerf 10 State 7H (p)	50.01	46.09	12.76	
900.00	900.00	269.67	1.91	1.91	Cerf 10 State 7H (p)	50.01	45.64	11.45	
1000.00	1000.00	269.67	2.14	2.14	Cerf 10 State 7H (p)	50.01	45.19	10.38	
1100.00	1100.00	269.67	2.36	2.36	Cerf 10 State 7H (p)	50.01	44.74	9.50	
1200.00	1200.00	269.67	2.59	2.59	Cerf 10 State 7H (p)	50.01	44.29	8.75	
1300.00	1300.00	269.67	2.81	2.81	Cerf 10 State 7H (p)	50.01	43.84	8.11	
1400.00	1400.00	269.67	3.03	3.03	Cerf 10 State 7H (p)	50.01	43.40	7.56	
1500.00	1500.00	269.67	3.26	3.26	Cerf 10 State 7H (p)	50.01	42.95	7.08	
1600.00	1600.00	269.67	3.48	3.48	Cerf 10 State 7H (p)	50.01	42.50	6.66	
1700.00	1700.00	269.67	3.71	3.71	Cerf 10 State 7H (p)	50.01	42.05	6.28	
1800.00	1800.00	269.67	3.93	3.93	Cerf 10 State 7H (p)	50.01	41.60	5.94	
1900.00	1900.00	269.67	4.16	4.16	Cerf 10 State 7H (p)	50.01	41.15	5.64	
2000.00	2000.00	269.67	4.38	4.38	Cerf 10 State 7H (p)	50.01	40.70	5.37	
2100.00	2100.00	269.67	4.61	4.61	Cerf 10 State 7H (p)	50.01	40.25	5.12	
2200.00	2200.00	269.67	4.83	4.83	Cerf 10 State 7H (p)	50.01	39.80	4.90	
2300.00	2300.00	269.67	5.06	5.06	Cerf 10 State 7H (p)	50.01	39.35	4.69	
2400.00	2400.00	269.67	5.28	5.28	Cerf 10 State 7H (p)	50.01	38.90	4.50	
2500.00	2500.00	270.28	5.51	5.51	Cerf 10 State 7H (p)	50.01	38.46	4.33	
2600.00	2600.00	272.83	5.73	5.73	Cerf 10 State 7H (p)	50.07	38.07	4.17	
2700.00	2700.00	277.34	5.96	5.96	Cerf 10 State 7H (p)	50.42	37.98	4.05	
2800.00	2800.00	283.64	6.18	6.18	Cerf 10 State 7H (p)	51.47	38.58	3.99	
2900.00	2900.00	291.35	6.41	6.41	Cerf 10 State 7H (p)	53.72	40.37	4.02	

5D Anti-Collision Report

Primary Well: Cedar 11 State 1H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
3000.00	3000.00	299.80	6.63	6.63	Cerf 10 State 7H (p)	57.71	43.92	4.19	
3100.00	3100.00	308.24	6.86	6.86	Cerf 10 State 7H (p)	63.84	49.65	4.50	
3200.00	3199.99	315.51	7.08	7.08	Cerf 10 State 7H (p)	71.60	56.96	4.89	
3300.00	3299.95	321.27	7.30	7.30	Cerf 10 State 7H (p)	80.27	65.22	5.34	
3400.00	3399.85	325.88	7.53	7.52	Cerf 10 State 7H (p)	89.56	74.09	5.79	
3500.00	3499.65	329.50	7.75	7.73	Cerf 10 State 7H (p)	98.93	83.02	6.22	
3600.00	3599.33	332.09	7.98	7.95	Cerf 10 State 7H (p)	107.16	90.79	6.55	
3700.00	3698.85	333.93	8.21	8.16	Cerf 10 State 7H (p)	114.00	97.19	6.78	
3800.00	3798.18	335.20	8.44	8.37	Cerf 10 State 7H (p)	119.36	102.11	6.92	
3900.00	3897.30	336.03	8.68	8.58	Cerf 10 State 7H (p)	123.17	105.42	6.94	
4000.00	3996.18	336.50	8.93	8.78	Cerf 10 State 7H (p)	125.41	107.18	6.88	
4100.00	4094.78	336.63	9.19	9.00	Cerf 10 State 7H (p)	126.06	107.35	6.74	
4200.00	4193.26	336.63	9.46	9.23	Cerf 10 State 7H (p)	126.06	106.87	6.57	
4300.00	4291.74	336.63	9.73	9.46	Cerf 10 State 7H (p)	126.06	106.38	6.41	
4400.00	4390.22	336.63	10.01	9.69	Cerf 10 State 7H (p)	126.06	105.89	6.25	
4500.00	4488.70	336.63	10.30	9.92	Cerf 10 State 7H (p)	126.06	105.39	6.10	
4600.00	4587.18	336.63	10.60	10.16	Cerf 10 State 7H (p)	126.06	104.89	5.96	
4700.00	4685.66	336.63	10.90	10.40	Cerf 10 State 7H (p)	126.06	104.39	5.82	
4800.00	4784.14	336.63	11.20	10.64	Cerf 10 State 7H (p)	126.06	103.88	5.69	
4900.00	4882.63	336.63	11.51	10.87	Cerf 10 State 7H (p)	126.06	103.37	5.56	
5000.00	4981.11	336.63	11.82	11.11	Cerf 10 State 7H (p)	126.06	102.86	5.43	
5100.00	5079.59	336.63	12.14	11.35	Cerf 10 State 7H (p)	126.06	102.35	5.32	
5200.00	5178.07	336.63	12.46	11.60	Cerf 10 State 7H (p)	126.06	101.83	5.20	
5300.00	5276.55	336.63	12.78	11.84	Cerf 10 State 7H (p)	126.06	101.31	5.09	
5400.00	5375.03	336.63	13.11	12.08	Cerf 10 State 7H (p)	126.06	100.79	4.99	
5500.00	5473.51	336.63	13.44	12.32	Cerf 10 State 7H (p)	126.06	100.27	4.89	
5600.00	5571.99	336.63	13.77	12.57	Cerf 10 State 7H (p)	126.06	99.75	4.79	
5700.00	5670.47	336.63	14.10	12.81	Cerf 10 State 7H (p)	126.06	99.23	4.70	
5800.00	5768.95	336.63	14.44	13.05	Cerf 10 State 7H (p)	126.06	98.70	4.61	
5900.00	5867.43	336.63	14.78	13.30	Cerf 10 State 7H (p)	126.06	98.17	4.52	
6000.00	5965.91	336.63	15.12	13.54	Cerf 10 State 7H (p)	126.06	97.64	4.44	
6100.00	6064.39	336.63	15.46	13.79	Cerf 10 State 7H (p)	126.06	97.11	4.35	
6200.00	6162.88	334.70	15.81	14.03	Cerf 10 State 7H (p)	128.19	98.75	4.36	
6300.00	6261.36	327.90	16.15	14.28	Cerf 10 State 7H (p)	138.20	108.28	4.62	
6400.00	6359.84	319.04	16.50	14.53	Cerf 10 State 7H (p)	159.76	129.48	5.28	
6500.00	6458.32	310.83	16.85	14.77	Cerf 10 State 7H (p)	194.95	165.02	6.51	

5D Anti-Collision Report

Primary Well: Cedar 11 State 1H (p) (TVD Relative to Kelly Bushing, All Azimuth Relative to GRID NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
6600.00	6556.80	304.37	17.20	15.02	Cerf 10 State 7H (p)	242.96	213.58	8.27	
6700.00	6655.28	299.60	17.55	15.27	Cerf 10 State 7H (p)	301.48	273.03	10.60	
6800.00	6753.76	241.71	17.90	15.52	Cerf 10 State 9H (p)	396.87	359.63	10.66	
6900.00	6852.24	242.01	18.25	15.77	Cerf 10 State 9H (p)	405.61	367.67	10.69	
7000.00	6950.72	242.29	18.61	16.01	Cerf 10 State 9H (p)	414.36	375.72	10.72	
7100.00	7049.20	242.56	18.96	16.26	Cerf 10 State 9H (p)	423.11	383.77	10.75	
7200.00	7147.68	242.81	19.32	16.51	Cerf 10 State 9H (p)	432.07	392.08	10.80	
7300.00	7246.14	223.33	19.63	16.76	Cerf 10 State 9H (p)	448.23	408.02	11.15	
7400.00	7343.39	189.09	19.53	16.98	Cerf 10 State 9H (p)	484.84	444.62	12.05	
7500.00	7436.61	174.22	19.10	17.12	Cerf 10 State 9H (p)	542.28	502.13	13.50	
7600.00	7522.97	164.11	18.47	17.11	Cerf 10 State 9H (p)	616.41	576.50	15.44	
7700.00	7599.84	152.13	18.41	16.26	Cerf 10 State 9H (p)	702.50	662.88	17.73	
7800.00	7664.89	130.92	18.80	14.92	Cerf 10 State 9H (p)	795.98	756.69	20.26	
7900.00	7716.14	92.38	19.55	13.37	Cerf 10 State 9H (p)	892.83	853.69	22.81	
8000.00	7752.03	56.35	20.56	11.98	Cerf 10 State 9H (p)	989.71	950.60	25.30	
8100.00	7771.48	38.27	21.87	11.13	Cerf 10 State 9H (p)	1083.86	1044.74	27.71	
8200.00	7775.00	31.88	23.49	11.03	Cerf 10 State 9H (p)	1173.55	1134.27	29.88	
8300.00	7775.00	31.37	25.28	11.34	Cerf 10 State 9H (p)	1263.03	1223.67	32.09	
8400.00	7775.00	30.93	27.25	11.70	Cerf 10 State 9H (p)	1353.59	1314.08	34.26	
8500.00	7775.00	30.54	29.27	12.09	Cerf 10 State 9H (p)	1445.09	1405.49	36.49	
8600.00	7775.00	30.19	31.53	12.51	Cerf 10 State 9H (p)	1537.40	1497.73	38.76	
8700.00	7775.00	8.97	33.83	12.96	Cedar 11 State 2H (p)	960.76	936.53	39.67	
8800.00	7775.00	8.97	36.16	13.43	Cedar 11 State 2H (p)	960.76	935.48	38.01	
8900.00	7775.00	8.97	38.53	13.93	Cedar 11 State 2H (p)	960.76	934.36	36.40	
9000.00	7775.00	8.97	40.94	14.44	Cedar 11 State 2H (p)	960.76	933.20	34.86	
9100.00	7775.00	8.97	43.37	14.98	Cedar 11 State 2H (p)	960.76	931.99	33.39	
9200.00	7775.00	8.97	45.83	15.52	Cedar 11 State 2H (p)	960.76	930.74	32.01	
9300.00	7775.00	8.97	48.40	16.07	Cedar 11 State 2H (p)	960.76	929.48	30.71	
9400.00	7775.00	8.97	50.98	16.61	Cedar 11 State 2H (p)	960.76	928.15	29.46	
9500.00	7775.00	8.97	53.58	17.23	Cedar 11 State 2H (p)	960.76	926.78	28.27	
9600.00	7775.00	8.97	56.19	17.86	Cedar 11 State 2H (p)	960.76	925.33	27.12	
9700.00	7775.00	8.97	58.81	18.42	Cedar 11 State 2H (p)	960.76	923.94	26.09	
9800.00	7775.00	8.97	61.44	19.08	Cedar 11 State 2H (p)	960.76	922.57	25.16	
9900.00	7775.00	8.97	64.09	19.70	Cedar 11 State 2H (p)	960.76	921.11	24.23	
10000.00	7775.00	8.98	66.74	20.30	Cedar 11 State 2H (p)	960.76	919.59	23.33	
10100.00	7775.00	8.98	69.39	20.92	Cedar 11 State 2H (p)	960.76	918.19	22.57	

5D Anti-Collision Report

Primary Well: Cedar 11 State 1H (p) (TVD Relative to Kelly Bushing (Primary)) / All Azimuth Relative to GRID (NORTH)									
MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	Nearest Well	CC (US ft)	ES (US ft)	SF	Risk
10200.00	7775.00	8.98	72.06	21.62	Cedar 11 State 2H (p)	960.76	916.64	21.78	
10300.00	7775.00	8.98	74.73	22.23	Cedar 11 State 2H (p)	960.77	915.12	21.05	
10400.00	7775.00	8.98	77.41	22.93	Cedar 11 State 2H (p)	960.77	913.59	20.37	
10500.00	7775.00	8.98	80.09	23.59	Cedar 11 State 2H (p)	960.77	912.09	19.74	
10600.00	7775.00	8.98	82.78	24.23	Cedar 11 State 2H (p)	960.77	910.53	19.12	
10700.00	7775.00	8.98	85.47	24.87	Cedar 11 State 2H (p)	960.77	908.99	18.56	
10800.00	7775.00	8.98	88.16	25.51	Cedar 11 State 2H (p)	960.77	907.48	18.03	
10900.00	7775.00	8.98	90.86	26.20	Cedar 11 State 2H (p)	960.77	905.95	17.53	
11000.00	7775.00	8.98	93.56	26.89	Cedar 11 State 2H (p)	960.77	904.36	17.03	
11100.00	7775.00	8.98	96.27	27.58	Cedar 11 State 2H (p)	960.77	902.72	16.55	
11200.00	7775.00	8.98	98.97	28.28	Cedar 11 State 2H (p)	960.77	901.10	16.10	
11300.00	7775.00	8.98	101.68	28.97	Cedar 11 State 2H (p)	960.77	899.48	15.68	
11400.00	7775.00	8.98	104.39	29.67	Cedar 11 State 2H (p)	960.77	897.87	15.27	
11500.00	7775.00	8.98	107.11	30.36	Cedar 11 State 2H (p)	960.77	896.26	14.89	
11600.00	7775.00	8.98	109.82	31.06	Cedar 11 State 2H (p)	960.77	894.65	14.53	
11700.00	7775.00	8.98	112.54	31.75	Cedar 11 State 2H (p)	960.77	893.05	14.19	
11800.00	7775.00	8.98	115.26	32.45	Cedar 11 State 2H (p)	960.77	891.44	13.86	
11900.00	7775.00	8.98	117.98	33.15	Cedar 11 State 2H (p)	960.77	889.83	13.54	
12000.00	7775.00	8.98	120.70	33.85	Cedar 11 State 2H (p)	960.77	888.22	13.24	
12100.00	7775.00	8.98	123.43	34.55	Cedar 11 State 2H (p)	960.78	886.61	12.96	
12200.00	7775.00	8.98	126.15	35.26	Cedar 11 State 2H (p)	960.78	885.00	12.68	
12300.00	7775.00	8.98	128.88	35.96	Cedar 11 State 2H (p)	960.78	883.39	12.42	
12395.99	7775.00	8.98	131.50	36.64	Cedar 11 State 2H (p)	960.78	881.86	12.17	

Secondary Well: Carr 10 State 2H (p) (TVD Relative to Kelly Bushing (Primary)) / All Azimuth Relative to GRID (NORTH)									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	2.00	269.67	0.02	0.02	50.01	49.45	89.34	
100.00	100.00	102.00	269.67	0.12	0.12	50.01	49.24	64.52	
200.00	200.00	202.00	269.67	0.34	0.34	50.01	48.79	40.93	
300.00	300.00	302.00	269.67	0.57	0.57	50.01	48.34	29.93	
400.00	400.00	402.00	269.67	0.79	0.79	50.01	47.89	23.59	
500.00	500.00	502.00	269.67	1.02	1.02	50.01	47.44	19.46	
600.00	600.00	602.00	269.67	1.24	1.24	50.01	46.99	16.56	
700.00	700.00	702.00	269.67	1.47	1.47	50.01	46.54	14.42	
800.00	800.00	802.00	269.67	1.69	1.69	50.01	46.09	12.76	
900.00	900.00	902.00	269.67	1.92	1.92	50.01	45.64	11.45	
1000.00	1000.00	1002.00	269.67	2.14	2.14	50.01	45.19	10.38	
1100.00	1100.00	1102.00	269.67	2.36	2.36	50.01	44.74	9.50	
1200.00	1200.00	1202.00	269.67	2.59	2.59	50.01	44.29	8.75	
1300.00	1300.00	1302.00	269.67	2.81	2.81	50.01	43.84	8.11	
1400.00	1400.00	1402.00	269.67	3.04	3.04	50.01	43.40	7.56	
1500.00	1500.00	1502.00	269.67	3.26	3.26	50.01	42.95	7.08	
1600.00	1600.00	1602.00	269.67	3.49	3.49	50.01	42.50	6.66	

5D Anti-Collision Report

Secondary Well : Cerrito State 7H (p) (TVD Relative to Kelly Bushing (Primary)) : All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
1700.00	1700.00	1702.00	269.67	3.71	3.71	50.01	42.05	6.28	
1800.00	1800.00	1802.00	269.67	3.94	3.94	50.01	41.60	5.94	
1900.00	1900.00	1902.00	269.67	4.16	4.16	50.01	41.15	5.64	
2000.00	2000.00	2002.00	269.67	4.39	4.39	50.01	40.70	5.37	
2100.00	2100.00	2102.00	269.67	4.61	4.61	50.01	40.25	5.12	
2200.00	2200.00	2202.00	269.67	4.84	4.84	50.01	39.80	4.90	
2300.00	2300.00	2302.00	269.67	5.06	5.06	50.01	39.35	4.69	
2400.00	2400.00	2402.00	269.67	5.29	5.29	50.01	38.90	4.50	
2500.00	2500.00	2502.00	270.28	5.51	5.51	50.01	38.46	4.33	
2600.00	2599.92	2601.95	272.83	5.74	5.73	50.07	38.07	4.17	
2700.00	2699.69	2701.80	277.34	5.96	5.95	50.42	37.98	4.05	
2800.00	2799.20	2801.47	283.64	6.18	6.17	51.47	38.58	3.99	
2900.00	2898.37	2900.92	291.35	6.41	6.38	53.72	40.37	4.02	
3000.00	2997.11	3000.08	299.80	6.63	6.60	57.71	43.92	4.19	
3100.00	3095.34	3098.90	308.24	6.87	6.81	63.84	49.65	4.50	
3200.00	3193.10	3197.44	315.51	7.11	7.02	71.60	56.96	4.89	
3300.00	3290.44	3295.80	321.27	7.35	7.23	80.27	65.22	5.34	
3400.00	3387.33	3393.96	325.88	7.61	7.44	89.56	74.09	5.79	
3500.00	3484.83	3492.94	329.50	7.88	7.67	98.93	83.02	6.22	
3600.00	3582.87	3592.50	332.09	8.16	7.90	107.16	90.79	6.55	
3700.00	3681.06	3692.20	333.93	8.45	8.13	114.00	97.19	6.78	
3800.00	3779.37	3792.03	335.20	8.75	8.36	119.36	102.11	6.92	
3900.00	3877.76	3891.94	336.03	9.05	8.60	123.17	105.42	6.94	
4000.00	3976.21	3991.91	336.50	9.36	8.84	125.41	107.18	6.88	
4100.00	4074.69	4091.90	336.63	9.67	9.08	126.06	107.35	6.74	
4200.00	4173.17	4191.90	336.63	9.99	9.32	126.06	106.87	6.57	
4300.00	4271.65	4291.90	336.63	10.31	9.56	126.06	106.38	6.41	
4400.00	4370.13	4391.90	336.63	10.64	9.80	126.06	105.89	6.25	
4500.00	4468.61	4491.90	336.63	10.97	10.05	126.06	105.39	6.10	
4600.00	4567.09	4591.90	336.63	11.30	10.29	126.06	104.89	5.96	
4700.00	4665.57	4691.90	336.63	11.64	10.54	126.06	104.39	5.82	
4800.00	4764.05	4791.90	336.63	11.98	10.78	126.06	103.88	5.69	
4900.00	4862.53	4891.90	336.63	12.32	11.03	126.06	103.37	5.56	
5000.00	4961.01	4991.90	336.63	12.66	11.27	126.06	102.86	5.43	
5100.00	5059.49	5091.90	336.63	13.00	11.52	126.06	102.35	5.32	
5200.00	5157.97	5191.90	336.63	13.35	11.76	126.06	101.83	5.20	
5300.00	5256.46	5291.90	336.63	13.70	12.01	126.06	101.31	5.09	
5400.00	5354.94	5391.90	336.63	14.05	12.26	126.06	100.79	4.99	
5500.00	5453.42	5491.90	336.63	14.40	12.51	126.06	100.27	4.89	
5600.00	5551.90	5591.90	336.63	14.75	12.76	126.06	99.75	4.79	
5700.00	5650.38	5691.90	336.63	15.11	13.00	126.06	99.23	4.70	
5800.00	5748.86	5791.90	336.63	15.46	13.25	126.06	98.70	4.61	
5900.00	5847.34	5891.90	336.63	15.82	13.50	126.06	98.17	4.52	
6000.00	5945.82	5991.90	336.63	16.18	13.75	126.06	97.64	4.44	
6100.00	6044.30	6091.90	336.63	16.53	14.00	126.06	97.11	4.35	
6200.00	6135.84	6185.05	334.70	16.72	14.22	128.19	98.75	4.36	
6300.00	6220.58	6273.02	327.90	16.61	14.42	138.20	108.28	4.62	
6400.00	6295.24	6353.86	319.04	16.32	14.52	159.76	129.48	5.28	
6500.00	6357.72	6425.64	310.83	15.95	14.57	194.95	165.02	6.51	
6600.00	6408.25	6487.94	304.37	15.80	14.30	242.96	213.58	8.27	
6700.00	6448.33	6541.32	299.60	15.88	13.88	301.48	273.03	10.60	
6800.00	6479.87	6586.82	296.12	16.04	13.30	368.11	340.57	13.37	
6900.00	6504.69	6625.60	293.55	16.25	12.86	440.94	414.21	16.50	
7000.00	6524.33	6658.77	291.62	16.47	12.44	518.51	492.53	19.96	
7100.00	6539.97	6687.28	290.13	16.67	12.07	599.77	574.39	23.63	
7200.00	6552.54	6711.93	288.97	16.88	11.75	683.91	659.02	27.47	
7300.00	6562.55	6732.95	270.71	17.09	11.50	770.86	746.36	31.47	
7400.00	6568.50	6746.17	247.97	17.21	11.34	864.55	840.27	35.59	

5D Anti-Collision Report

Secondary Well: Car 10 State 7H (P) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
7500.00	6570.76	6751.35	274.46	17.25	11.27	962.73	938.39	39.56	
7600.00	6570.08	6749.78	337.27	17.24	11.29	1061.85	1037.30	43.26	
7700.00	6566.95	6742.65	355.07	17.18	11.38	1158.99	1134.09	46.54	
7800.00	6561.66	6731.03	0.19	17.07	11.53	1251.73	1226.35	49.31	
7900.00	6554.42	6715.77	2.31	16.92	11.71	1338.08	1312.14	51.57	
8000.00	6545.35	6697.62	3.45	16.74	11.92	1416.41	1389.85	53.34	
8100.00	6534.56	6677.18	4.24	16.59	12.22	1485.36	1458.09	54.47	
8200.00	6522.24	6655.12	4.71	16.44	12.49	1544.78	1516.73	55.07	
8300.00	6509.62	6633.69	4.77	16.31	12.77	1604.43	1575.57	55.60	
8400.00	6497.12	6613.44	4.82	16.17	13.00	1666.96	1637.39	56.38	
8500.00	6484.82	6594.31	4.87	16.06	13.22	1732.13	1701.92	57.33	
8600.00	6472.78	6576.26	4.92	16.00	13.44	1799.73	1768.88	58.34	
8700.00	6461.05	6559.23	4.96	15.94	13.66	1869.56	1838.10	59.43	
8800.00	6449.66	6543.16	5.01	15.88	13.87	1941.42	1909.39	60.61	
8900.00	6438.63	6528.00	5.05	15.85	14.00	2015.16	1982.58	61.86	
9000.00	6427.98	6513.69	5.09	15.82	14.12	2090.61	2057.54	63.21	
9100.00	6417.72	6500.18	5.13	15.80	14.22	2167.63	2134.10	64.65	
9200.00	6407.84	6487.42	5.16	15.80	14.30	2246.10	2212.13	66.12	
9300.00	6398.35	6475.35	5.20	15.81	14.37	2325.90	2291.52	67.66	
9400.00	6389.24	6463.94	5.23	15.84	14.44	2406.91	2372.16	69.27	
9500.00	6380.49	6453.14	5.26	15.87	14.49	2489.05	2453.98	70.97	
9600.00	6372.10	6442.90	5.29	15.89	14.53	2572.23	2536.90	72.81	
9700.00	6364.05	6433.20	5.31	15.92	14.56	2656.36	2620.69	74.49	
9800.00	6356.34	6423.99	5.34	15.96	14.57	2741.37	2705.48	76.38	
9900.00	6348.94	6415.25	5.36	16.00	14.58	2827.20	2791.03	78.18	
10000.00	6341.85	6406.94	5.39	16.03	14.59	2913.78	2877.35	79.97	
10100.00	6335.05	6399.03	5.41	16.07	14.59	3001.07	2964.45	81.97	
10200.00	6328.53	6391.51	5.43	16.10	14.60	3089.01	3052.13	83.76	
10300.00	6322.27	6384.34	5.45	16.15	14.56	3177.55	3140.44	85.64	
10400.00	6316.26	6377.50	5.47	16.19	14.55	3266.65	3229.37	87.62	
10500.00	6310.50	6370.97	5.49	16.23	14.54	3356.28	3318.84	89.64	
10600.00	6304.96	6364.73	5.51	16.26	14.53	3446.40	3408.82	91.70	
10700.00	6299.64	6358.77	5.52	16.29	14.52	3536.98	3499.25	93.75	
10800.00	6294.52	6353.07	5.54	16.32	14.51	3627.98	3590.07	95.68	
10900.00	6289.61	6347.60	5.55	16.35	14.51	3719.39	3681.30	97.65	
11000.00	6284.87	6342.37	5.57	16.37	14.50	3811.17	3772.92	99.65	
11100.00	6280.32	6337.35	5.58	16.39	14.49	3903.30	3864.91	101.67	
11200.00	6275.93	6332.54	5.59	16.41	14.48	3995.77	3957.24	103.71	
11300.00	6271.71	6327.92	5.61	16.43	14.48	4088.54	4049.88	105.76	
11400.00	6267.64	6323.47	5.62	16.45	14.47	4181.61	4142.83	107.82	
11500.00	6263.71	6319.20	5.63	16.47	14.47	4274.95	4236.05	109.89	
11600.00	6259.92	6315.09	5.64	16.48	14.46	4368.56	4329.54	111.97	
11700.00	6256.26	6311.14	5.65	16.49	14.46	4462.41	4423.29	114.06	
11800.00	6252.73	6307.33	5.66	16.51	14.45	4556.50	4517.27	116.15	
11900.00	6249.31	6303.65	5.67	16.52	14.45	4650.80	4611.47	118.25	
12000.00	6246.02	6300.11	5.68	16.53	14.47	4745.31	4705.89	120.36	
12100.00	6242.83	6296.69	5.69	16.54	14.46	4840.02	4800.50	122.47	
12200.00	6239.74	6293.39	5.70	16.55	14.46	4934.92	4895.31	124.59	
12300.00	6236.75	6290.20	5.71	16.56	14.45	5029.99	4990.29	126.70	
12395.99	6233.97	6287.24	5.71	16.57	14.44	5121.42	5081.63	128.73	
Secondary Well: Cedar 11 State 2H (P) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	4.00	179.79	0.02	0.02	149.97	149.40	264.82	
100.00	100.00	104.00	179.79	0.13	0.13	149.97	149.19	191.49	
200.00	200.00	204.00	179.79	0.35	0.35	149.97	148.74	122.15	
300.00	300.00	304.00	179.79	0.57	0.57	149.97	148.29	89.47	
400.00	400.00	404.00	179.79	0.80	0.80	149.97	147.85	70.56	

5D Anti-Collision Report

Secondary Well: Cedar 11 State 2H (P) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec. (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
500.00	500.00	504.00	179.79	1.02	1.02	149.97	147.40	58.25	
600.00	600.00	604.00	179.79	1.25	1.25	149.97	146.95	49.59	
700.00	700.00	704.00	179.79	1.47	1.47	149.97	146.50	43.18	
800.00	800.00	804.00	179.79	1.70	1.70	149.97	146.05	38.23	
900.00	900.00	904.00	179.79	1.92	1.92	149.97	145.60	34.30	
1000.00	1000.00	1004.00	179.79	2.14	2.14	149.97	145.15	31.10	
1100.00	1100.00	1104.00	179.79	2.37	2.37	149.97	144.70	28.45	
1200.00	1200.00	1204.00	179.79	2.59	2.59	149.97	144.25	26.21	
1300.00	1300.00	1304.00	179.79	2.82	2.82	149.97	143.80	24.30	
1400.00	1400.00	1404.00	179.79	3.04	3.04	149.97	143.35	22.65	
1500.00	1500.19	1504.19	179.79	3.27	3.27	149.97	142.90	21.21	
1600.00	1602.48	1606.49	179.58	3.49	3.49	149.07	141.55	19.83	
1700.00	1704.67	1708.72	179.01	3.72	3.72	146.65	138.68	18.41	
1800.00	1806.65	1810.81	178.04	3.95	3.94	142.72	134.32	16.99	
1900.00	1908.34	1912.71	176.60	4.18	4.16	137.35	128.50	15.53	
2000.00	2009.63	2014.34	174.60	4.41	4.38	130.61	121.34	14.08	
2100.00	2110.44	2115.64	171.87	4.65	4.60	122.65	112.92	12.59	
2200.00	2210.66	2216.56	168.18	4.90	4.82	113.68	103.48	11.14	
2300.00	2310.23	2317.03	163.21	5.16	5.05	104.03	93.37	9.76	
2400.00	2409.04	2417.00	156.45	5.43	5.27	94.25	83.08	8.44	
2500.00	2506.88	2516.26	147.35	5.72	5.49	85.24	73.54	7.29	
2600.00	2603.87	2614.74	136.21	6.01	5.72	78.68	66.43	6.42	
2700.00	2700.85	2713.22	123.67	6.32	5.95	75.62	62.82	5.91	
2800.00	2797.84	2811.70	110.77	6.63	6.18	76.48	63.16	5.74	
2900.00	2894.82	2910.18	98.74	6.94	6.41	81.14	67.36	5.89	
3000.00	2991.81	3008.66	88.38	7.27	6.65	89.00	74.79	6.26	
3100.00	3088.79	3107.15	79.88	7.59	6.89	99.30	84.68	6.79	
3200.00	3185.93	3205.78	73.47	7.93	7.13	111.07	96.04	7.39	
3300.00	3283.29	3304.64	69.05	8.26	7.38	123.30	107.83	7.97	
3400.00	3380.84	3403.70	66.09	8.60	7.62	135.38	119.46	8.50	
3500.00	3478.56	3502.93	64.22	8.95	7.86	146.98	130.60	8.98	
3600.00	3576.42	3602.30	63.17	9.30	8.11	157.91	141.07	9.38	
3700.00	3674.39	3701.77	62.79	9.65	8.36	168.08	150.73	9.69	
3800.00	3772.43	3801.33	62.95	10.00	8.60	177.45	159.60	9.94	
3900.00	3870.52	3900.93	63.58	10.35	8.85	186.06	167.64	10.10	
4000.00	3968.63	4000.55	64.61	10.71	9.10	193.93	174.95	10.22	
4100.00	4066.72	4100.16	66.02	11.07	9.35	201.17	181.59	10.28	
4200.00	4164.81	4199.76	67.56	11.43	9.59	208.26	188.08	10.32	
4300.00	4262.89	4299.35	69.01	11.79	9.84	215.49	194.71	10.37	
4400.00	4360.97	4398.95	70.35	12.15	10.09	222.84	201.47	10.42	
4500.00	4459.05	4498.55	71.62	12.51	10.34	230.32	208.30	10.46	
4600.00	4557.14	4598.14	72.80	12.88	10.59	237.89	215.24	10.50	
4700.00	4655.22	4697.74	73.91	13.24	10.84	245.56	222.23	10.53	
4800.00	4753.30	4797.33	74.95	13.61	11.09	253.32	229.32	10.55	
4900.00	4851.39	4896.93	75.93	13.97	11.34	261.16	236.48	10.58	
5000.00	4949.47	4996.53	76.85	14.34	11.59	269.06	243.72	10.62	
5100.00	5047.55	5096.12	77.72	14.71	11.84	277.03	251.02	10.65	
5200.00	5145.63	5195.72	78.54	15.08	12.09	285.07	258.38	10.68	
5300.00	5243.72	5295.31	79.31	15.45	12.35	293.15	265.80	10.72	
5400.00	5341.80	5394.91	80.05	15.82	12.60	301.29	273.25	10.74	
5500.00	5439.88	5494.51	80.74	16.19	12.85	309.48	280.73	10.77	
5600.00	5537.97	5594.10	81.40	16.56	13.10	317.70	288.25	10.79	
5700.00	5636.05	5693.70	82.03	16.93	13.35	325.97	295.82	10.81	
5800.00	5734.13	5793.29	82.62	17.30	13.60	334.27	303.43	10.84	
5900.00	5832.22	5892.89	83.19	17.67	13.86	342.61	311.07	10.86	
6000.00	5930.30	5992.49	83.73	18.04	14.11	350.98	318.73	10.88	
6100.00	6028.38	6092.08	84.24	18.41	14.36	359.38	326.41	10.90	
6200.00	6126.46	6191.68	84.73	18.78	14.61	367.81	334.11	10.92	

5D Anti-Collision Report

Secondary Well: Cedar 11 State 2H(p) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T. Face to Sec (°)	S. Major (US ft)	S. Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
6300.00	6224.55	6291.28	85.20	19.16	14.86	376.26	341.84	10.93	
6400.00	6317.08	6385.24	85.63	19.51	15.10	384.84	349.76	10.97	
6500.00	6374.43	6443.97	85.92	19.66	15.18	399.88	364.60	11.33	
6600.00	6428.33	6500.31	86.24	19.67	15.21	424.78	389.48	12.03	
6700.00	6477.64	6553.41	86.55	19.69	15.28	458.82	423.73	13.07	
6800.00	6521.76	6602.71	86.85	19.71	15.23	501.14	466.50	14.47	
6900.00	6560.55	6647.95	87.11	19.75	15.14	550.81	516.69	16.15	
7000.00	6594.22	6689.12	87.34	19.75	14.98	606.88	573.38	18.11	
7100.00	6623.21	6726.38	87.53	19.82	14.77	668.50	635.59	20.31	
7200.00	6648.04	6759.99	87.69	19.93	14.56	734.88	702.61	22.77	
7300.00	6669.48	6790.58	68.39	20.03	14.31	804.54	772.86	25.39	
7400.00	6690.29	6821.99	35.21	20.19	14.02	867.82	836.85	28.02	
7500.00	6710.67	6854.85	22.35	20.38	13.65	921.55	891.42	30.59	
7600.00	6730.16	6888.80	16.42	20.59	13.31	965.15	935.91	33.02	
7700.00	6748.40	6923.54	13.21	20.89	12.92	998.19	969.84	35.21	
7800.00	6765.07	6958.81	11.29	21.24	12.46	1020.35	992.98	37.28	
7900.00	6779.96	6994.38	10.12	21.63	12.03	1031.41	1005.00	39.06	
8000.00	6792.87	7030.06	9.41	22.10	11.57	1031.28	1005.68	40.30	
8100.00	6803.68	7065.63	9.05	22.60	11.05	1019.94	995.22	41.26	
8200.00	6812.35	7100.99	8.97	23.12	10.66	998.61	974.55	41.50	
8300.00	6819.03	7137.02	8.97	23.76	10.25	979.87	956.41	41.78	
8400.00	6823.56	7173.78	8.97	24.41	9.95	967.40	944.33	41.93	
8500.00	6825.78	7210.99	8.97	25.06	9.67	961.36	938.56	42.17	
8600.00	6826.00	7284.13	8.97	26.51	9.79	960.76	937.49	41.29	
8700.00	6826.00	7384.13	8.97	28.54	10.17	960.76	936.53	39.67	
8800.00	6826.00	7484.13	8.97	30.80	10.56	960.76	935.48	38.01	
8900.00	6826.00	7584.13	8.97	33.12	10.99	960.76	934.36	36.40	
9000.00	6826.00	7684.13	8.97	35.48	11.46	960.76	933.20	34.86	
9100.00	6826.00	7784.13	8.97	37.87	11.98	960.76	931.99	33.39	
9200.00	6826.00	7884.13	8.97	40.28	12.52	960.76	930.74	32.01	
9300.00	6826.00	7984.13	8.97	42.73	13.08	960.76	929.48	30.71	
9400.00	6826.00	8084.13	8.97	45.20	13.64	960.76	928.15	29.46	
9500.00	6826.00	8184.13	8.97	47.74	14.18	960.76	926.78	28.27	
9600.00	6826.00	8284.13	8.97	50.34	14.75	960.76	925.33	27.12	
9700.00	6826.00	8384.13	8.97	52.94	15.39	960.76	923.94	26.09	
9800.00	6826.00	8484.13	8.97	55.56	16.01	960.76	922.57	25.16	
9900.00	6826.00	8584.13	8.97	58.20	16.60	960.76	921.11	24.23	
10000.00	6826.00	8684.13	8.98	60.84	17.25	960.76	919.59	23.33	
10100.00	6826.00	8784.13	8.98	63.49	17.91	960.76	918.19	22.57	
10200.00	6826.00	8884.13	8.98	66.14	18.50	960.76	916.64	21.78	
10300.00	6826.00	8984.13	8.98	68.81	19.19	960.77	915.12	21.05	
10400.00	6826.00	9084.13	8.98	71.48	19.87	960.77	913.59	20.37	
10500.00	6826.00	9184.13	8.98	74.15	20.48	960.77	912.09	19.74	
10600.00	6826.00	9284.13	8.98	76.84	21.16	960.77	910.53	19.12	
10700.00	6826.00	9384.13	8.98	79.52	21.87	960.77	908.99	18.56	
10800.00	6826.00	9484.13	8.98	82.21	22.55	960.77	907.48	18.03	
10900.00	6826.00	9584.13	8.98	84.91	23.20	960.77	905.95	17.53	
11000.00	6826.00	9684.13	8.98	87.61	23.84	960.77	904.36	17.03	
11100.00	6826.00	9784.13	8.98	90.31	24.54	960.77	902.72	16.55	
11200.00	6826.00	9884.13	8.98	93.01	25.26	960.77	901.10	16.10	
11300.00	6826.00	9984.13	8.98	95.72	25.97	960.77	899.48	15.68	
11400.00	6826.00	10084.13	8.98	98.43	26.67	960.77	897.87	15.27	
11500.00	6826.00	10184.13	8.98	101.14	27.37	960.77	896.26	14.89	
11600.00	6826.00	10284.13	8.98	103.86	28.06	960.77	894.65	14.53	
11700.00	6826.00	10384.13	8.98	106.57	28.75	960.77	893.05	14.19	
11800.00	6826.00	10484.13	8.98	109.29	29.45	960.77	891.44	13.86	
11900.00	6826.00	10584.13	8.98	112.01	30.14	960.77	889.83	13.54	
12000.00	6826.00	10684.13	8.98	114.73	30.83	960.77	888.22	13.24	

5D Anti-Collision Report

Secondary Well: Cedar 11 State 2H (p) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
12100.00	6826.00	10784.13	8.98	117.45	31.52	960.78	886.61	12.96	
12200.00	6826.00	10884.13	8.98	120.18	32.21	960.78	885.00	12.68	
12300.00	6826.00	10984.13	8.98	122.91	32.90	960.78	883.39	12.42	
12395.99	6826.00	11079.47	8.98	125.50	33.56	960.78	881.86	12.17	

Secondary Well: Cerf 10 State 9H (p) (TVD Relative to Kelly Bushing (Primary)); All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
0.00	0.00	3.00	198.21	0.02	0.02	158.18	156.64	102.55	
100.00	100.00	103.00	198.21	0.13	0.13	158.18	156.43	89.97	
200.00	200.00	203.00	198.21	0.35	0.35	158.18	155.98	71.78	
300.00	300.00	303.00	198.21	0.57	0.57	158.18	155.53	59.64	
400.00	400.00	403.00	198.21	0.79	0.79	158.18	155.08	51.01	
500.00	500.00	503.00	198.21	1.02	1.02	158.18	154.63	44.55	
600.00	600.00	603.00	198.21	1.24	1.24	158.18	154.19	39.55	
700.00	700.00	703.00	198.21	1.47	1.47	158.18	153.74	35.56	
800.00	800.00	803.00	198.21	1.69	1.69	158.18	153.29	32.29	
900.00	900.00	903.00	198.21	1.92	1.92	158.18	152.84	29.58	
1000.00	1000.00	1003.00	198.21	2.14	2.14	158.18	152.39	27.29	
1100.00	1100.00	1103.00	198.21	2.37	2.37	158.18	151.94	25.33	
1200.00	1200.00	1203.00	198.21	2.59	2.59	158.18	151.49	23.63	
1300.00	1300.00	1303.00	198.21	2.82	2.82	158.18	151.04	22.14	
1400.00	1400.00	1403.00	198.21	3.04	3.04	158.18	150.59	20.83	
1500.00	1500.00	1503.00	198.21	3.27	3.27	158.18	150.14	19.67	
1600.00	1600.00	1603.00	198.21	3.49	3.49	158.18	149.69	18.63	
1700.00	1700.00	1703.00	198.21	3.72	3.72	158.18	149.24	17.69	
1800.00	1800.00	1803.00	198.21	3.94	3.94	158.18	148.79	16.84	
1900.00	1900.00	1903.00	198.21	4.17	4.17	158.18	148.34	16.07	
2000.00	2000.00	2003.00	198.21	4.39	4.39	158.18	147.89	15.37	
2100.00	2100.00	2103.00	198.21	4.62	4.62	158.18	147.45	14.73	
2200.00	2200.00	2203.00	198.21	4.84	4.84	158.18	147.00	14.14	
2300.00	2300.00	2303.00	198.21	5.06	5.06	158.18	146.55	13.59	
2400.00	2400.00	2403.00	198.21	5.29	5.29	158.18	146.10	13.09	
2500.00	2500.00	2503.00	198.21	5.51	5.51	158.18	145.65	12.62	
2600.00	2600.00	2603.00	198.21	5.74	5.74	158.18	145.20	12.18	
2700.00	2700.00	2703.00	198.21	5.96	5.96	158.18	144.75	11.77	
2800.00	2800.00	2803.00	198.21	6.19	6.19	158.18	144.30	11.39	
2900.00	2900.69	2903.69	198.25	6.41	6.41	158.10	143.77	11.03	
3000.00	3002.53	3005.54	198.67	6.64	6.64	157.08	142.30	10.63	
3100.00	3104.23	3107.30	199.61	6.86	6.86	154.91	139.71	10.19	
3200.00	3205.75	3208.95	200.95	7.09	7.08	152.63	136.96	9.74	
3300.00	3307.07	3310.51	202.62	7.32	7.29	150.97	134.87	9.38	
3400.00	3408.13	3411.96	204.60	7.55	7.50	150.00	133.43	9.05	
3500.00	3508.91	3513.28	206.87	7.78	7.72	149.79	132.76	8.80	
3600.00	3609.34	3614.47	209.40	8.02	7.93	150.42	132.94	8.60	
3700.00	3709.40	3715.51	212.15	8.27	8.13	151.99	134.05	8.47	
3800.00	3809.04	3816.39	215.06	8.53	8.35	154.58	136.18	8.40	
3900.00	3907.72	3916.56	217.99	8.80	8.57	158.33	139.40	8.36	
4000.00	4005.83	4016.18	220.44	9.08	8.79	163.73	144.27	8.42	
4100.00	4103.93	4115.79	222.35	9.36	9.02	170.67	150.69	8.54	
4200.00	4202.01	4215.39	223.92	9.65	9.25	178.29	157.76	8.69	
4300.00	4300.09	4314.98	225.35	9.95	9.48	186.03	164.93	8.82	
4400.00	4398.17	4414.58	226.67	10.25	9.72	193.87	172.21	8.95	
4500.00	4496.26	4514.17	227.89	10.56	9.96	201.81	179.57	9.07	
4600.00	4594.34	4613.77	229.02	10.87	10.19	209.84	187.02	9.19	
4700.00	4692.42	4713.37	230.06	11.19	10.43	217.94	194.53	9.31	
4800.00	4790.51	4812.96	231.02	11.51	10.67	226.10	202.11	9.42	
4900.00	4888.59	4912.56	231.92	11.83	10.91	234.33	209.73	9.53	
5000.00	4986.67	5012.15	232.76	12.16	11.15	242.61	217.39	9.62	

5D Anti-Collision Report

Secondary Well - Carlisle State 9H (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
5100.00	5084.76	5111.75	233.54	12.49	11.39	250.93	225.08	9.71	
5200.00	5182.84	5211.35	234.28	12.83	11.63	259.30	232.79	9.78	
5300.00	5280.92	5310.94	234.96	13.16	11.87	267.71	240.55	9.86	
5400.00	5379.00	5410.54	235.61	13.50	12.11	276.16	248.34	9.93	
5500.00	5477.09	5510.13	236.21	13.84	12.35	284.64	256.15	9.99	
5600.00	5575.17	5609.73	236.79	14.18	12.60	293.15	264.00	10.06	
5700.00	5673.25	5709.33	237.32	14.53	12.84	301.68	271.87	10.12	
5800.00	5771.34	5808.92	237.83	14.88	13.09	310.24	279.76	10.18	
5900.00	5869.42	5908.52	238.32	15.22	13.33	318.83	287.68	10.24	
6000.00	5967.50	6008.11	238.77	15.57	13.57	327.43	295.61	10.29	
6100.00	6065.58	6107.71	239.21	15.93	13.82	336.06	303.57	10.34	
6200.00	6163.67	6207.31	239.62	16.28	14.07	344.70	311.54	10.39	
6300.00	6261.75	6306.90	240.01	16.63	14.31	353.36	319.52	10.44	
6400.00	6359.83	6406.50	240.38	16.99	14.56	362.03	327.52	10.49	
6500.00	6457.92	6506.09	240.74	17.35	14.80	370.72	335.53	10.53	
6600.00	6556.00	6605.69	241.08	17.70	15.05	379.43	343.55	10.58	
6700.00	6654.08	6705.29	241.40	18.06	15.30	388.14	351.59	10.62	
6800.00	6752.16	6804.88	241.71	18.42	15.55	396.87	359.63	10.66	
6900.00	6850.25	6904.48	242.01	18.78	15.79	405.61	367.67	10.69	
7000.00	6948.33	7004.07	242.29	19.14	16.04	414.36	375.72	10.72	
7100.00	7046.41	7103.67	242.56	19.50	16.29	423.11	383.77	10.75	
7200.00	7136.57	7195.23	242.81	19.84	16.50	432.07	392.08	10.80	
7300.00	7193.62	7253.70	223.33	19.97	16.53	448.23	408.02	11.15	
7400.00	7244.18	7306.59	189.09	19.98	16.62	484.84	444.62	12.05	
7500.00	7284.37	7349.72	174.22	20.03	16.58	542.28	502.13	13.50	
7600.00	7313.20	7381.46	164.11	20.08	16.54	616.41	576.50	15.44	
7700.00	7331.52	7402.05	152.13	20.09	16.49	702.50	662.88	17.73	
7800.00	7340.92	7412.76	130.92	20.11	16.46	795.98	756.69	20.26	
7900.00	7343.02	7415.17	92.38	20.12	16.45	892.83	853.69	22.81	
8000.00	7339.19	7410.78	56.35	20.11	16.46	989.71	950.60	25.30	
8100.00	7330.55	7400.95	38.27	20.09	16.49	1083.86	1044.74	27.71	
8200.00	7318.25	7387.10	31.88	20.08	16.52	1173.55	1134.27	29.88	
8300.00	7306.12	7373.60	31.37	20.07	16.55	1263.03	1223.67	32.09	
8400.00	7295.04	7361.39	30.93	20.05	16.57	1353.59	1314.08	34.26	
8500.00	7284.90	7350.30	30.54	20.03	16.58	1445.09	1405.49	36.49	
8600.00	7275.59	7340.20	30.19	20.01	16.61	1537.40	1497.73	38.76	
8700.00	7267.02	7330.96	29.88	20.00	16.61	1630.40	1590.65	41.02	
8800.00	7259.11	7322.48	29.60	19.99	16.62	1724.01	1684.16	43.26	
8900.00	7251.80	7314.68	29.35	19.99	16.62	1818.16	1778.22	45.53	
9000.00	7245.02	7307.48	29.12	19.98	16.62	1912.78	1872.76	47.80	
9100.00	7238.71	7300.81	28.91	19.97	16.58	2007.82	1967.74	50.10	
9200.00	7232.85	7294.62	28.72	19.97	16.58	2103.23	2063.09	52.40	
9300.00	7227.37	7288.86	28.55	19.98	16.57	2198.97	2158.78	54.72	
9400.00	7222.25	7283.49	28.39	19.98	16.56	2295.01	2254.79	57.06	
9500.00	7217.45	7278.47	28.24	19.98	16.56	2391.32	2351.10	59.45	
9600.00	7212.94	7273.77	28.10	19.98	16.55	2487.87	2447.58	61.75	
9700.00	7208.71	7269.36	27.98	19.98	16.55	2584.64	2544.30	64.07	
9800.00	7204.72	7265.21	27.86	19.98	16.54	2681.61	2641.22	66.39	
9900.00	7200.96	7261.30	27.75	19.98	16.53	2778.76	2738.32	68.70	
10000.00	7197.41	7257.62	27.64	19.97	16.53	2876.08	2835.60	71.04	
10100.00	7194.04	7254.14	27.55	19.97	16.53	2973.55	2933.03	73.38	
10200.00	7190.86	7250.85	27.46	19.97	16.53	3071.16	3030.58	75.68	
10300.00	7187.83	7247.73	27.37	19.96	16.53	3168.90	3128.30	78.05	
10400.00	7184.96	7244.76	27.29	19.96	16.53	3266.76	3226.16	80.47	
10500.00	7182.23	7241.95	27.22	19.95	16.53	3364.72	3324.07	82.77	
10600.00	7179.63	7239.27	27.14	19.95	16.53	3462.79	3422.10	85.11	
10700.00	7177.16	7236.73	27.08	19.94	16.53	3560.95	3520.23	87.46	
10800.00	7174.79	7234.29	27.01	19.94	16.53	3659.20	3618.44	89.77	

5D Anti-Collision Report

Secondary Well: Car 10 State 9H (p) (TVD Relative to Kelly Bushing (Primary)) All Azimuth Relative to GRID NORTH									
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T Face to Sec (°)	S Major (US ft)	S Minor (US ft)	CC (US ft)	ES (US ft)	SF	Risk
10900.00	7172.53	7231.98	26.95	19.94	16.53	3757.53	3716.71	92.06	
11000.00	7170.37	7229.76	26.89	19.93	16.53	3855.94	3815.07	94.36	
11100.00	7168.31	7227.64	26.84	19.93	16.53	3954.41	3913.50	96.65	
11200.00	7166.33	7225.61	26.79	19.92	16.52	4052.96	4012.00	98.95	
11300.00	7164.43	7223.67	26.74	19.92	16.52	4151.56	4110.56	101.25	
11400.00	7162.61	7221.80	26.69	19.91	16.52	4250.22	4209.17	103.54	
11500.00	7160.86	7220.01	26.64	19.91	16.52	4348.94	4307.85	105.83	
11600.00	7159.18	7218.29	26.60	19.90	16.52	4447.71	4406.57	108.12	
11700.00	7157.57	7216.64	26.56	19.90	16.52	4546.53	4505.35	110.40	
11800.00	7156.01	7215.05	26.52	19.90	16.52	4645.39	4604.17	112.69	
11900.00	7154.51	7213.52	26.48	19.89	16.52	4744.30	4703.03	114.97	
12000.00	7153.07	7212.05	26.44	19.89	16.52	4843.24	4801.94	117.24	
12100.00	7151.68	7210.62	26.41	19.88	16.51	4942.23	4900.88	119.52	
12200.00	7150.33	7209.25	26.37	19.88	16.51	5041.25	4999.85	121.78	
12300.00	7149.04	7207.93	26.34	19.87	16.51	5140.31	5098.87	124.04	
12395.99	7147.83	7206.70	26.31	19.87	16.51	5235.43	5193.94	126.20	

**Weatherford®**

Weatherford Drilling Services

GeoDec4 v2.0.0.3

Report Date: September 15, 2014
Job Number: _____
Customer: Devon Energy
Well Name: Cedar 11 State #1H
API Number: _____
Rig Name: _____
Location: Eddy Co, NM Nad83 NME
Block: _____
Engineer: RWJ

NAD83 / New Mexico East (ftUS)	NAD83 (1986)
Projected Coordinate System	Geodetic Coordinate System
Datum: North American Datum 1983 (1986)	Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
EPSG: 2257	EPSG: 4269
North: 542465.05 US Survey Foot	Latitude: 32.49119 Degree
East: 592170.38 US Survey Foot	Longitude: -104.168465 Degree
Convergence: 0.09°	
Declination: 7.61°	
Total Correction: 7.52°	
Datum Transformation: none	

Geodetic Location WGS84

MSL Elevation = 0 m

Latitude = 32° 29' 28.28" N

Longitude = 104° 10' 06.47" W

Magnetic Declination = 7.61 deg	[True North Offset]
Local Gravity = .9988 g	Checksum = 6529
Local Field Strength = 48314 nT	Magnetic Vector X = 23776 nT
Magnetic Dip = 60.23 deg	Magnetic Vector Y = 3178 nT
Magnetic Model = bggm2014.dat	Magnetic Vector Z = 41938 nT
Run Date = February 15, 2015	Magnetic Vector H = 23988 nT

Signed: _____ Date: _____

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Cedar 11 State 1H

Field: Eddy Co, NM (Nad: 83 NME)

Map Units: US ft
Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS)

Site: Cedar 11 State 1H, Cerf 10 State 7H Pad

Company Name: Devon Energy
Units: US ft
TVD Reference:
Position:

Northing: 542465.05US ft Latitude: 32° 29' 28.28"
Easting: 592170.38US ft Longitude: -104° 10' 6.47"

North Reference: Grid Convergence Angle: 0.09
Elevation above Mean Sea Level : 3281.00US ft
Comment :

Slot: Cedar 11 State 1H

Position (Relative to Site centre)

+N/-S: 0.00US ft Northing: 542465.05US ft Latitude: 32°29'28.28"
+E/-W: 0.00US ft Easting: 592170.38US ft Longitude: -104°10'6.47"
Elevation above Mean Sea Level : 3281.00US ft
Comment :

Well: Cedar 11 State 1H

Type: Main well Rig Height (Kelly Bushing): 25.00US ft Relative To Mean Sea Level: 3306.00US ft
File Number:
Plan Folder: P1 Plan: P1:V1
Closure Distance: 4861.39US ft Closure Azimuth: 81.2562°
Comment:

Vertical Section:

Position of Origin (Relative to Slot centre) +N/-S: 0.00US ft +E/-W: 0.00US ft
Vertical Section Azimuth: 90.00°

Magnetic Parameters:

Model: BGGM Field Strength: 48324.2 nT Declination: 7.62° Dip: 60.23° Date: 15/Jan/2015 (dd/mm/yyyy)

Target Set: Cedar 11 State 1H

Number of Targets: 1

Target: RBHL 1H

Position: (Relative to Slot centre)

+N/-S: 739.01 Northing: 543204.06 Latitude: 32°29'35.52"

+E/-W: 4804.89	Easting: 596975.27	Longitude: -104°9'10.36"
TVD (Kelly Bushing) :	7775.00 US ft	
Shape: Cuboid		
Orientation	Inclination: 0.00°	Azimuth: 0.00°
Dimensions	Length: 20.00	Breadth: 20.00 Height: 20.00

Casing Points: (Relative to Slot Centre, TVD Relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Name
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Wellpath created using minimum curvature

Salient Points: (Relative to Slot Centre, TVD Relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Rate (°/100 US ft)	T.Face (°)	Comment
0	0	0	0	0	0	0	0	0	0	0	
3090	0	0	3090	0	0	0	0	0	0	0	Nudge
4090	10	0	4084.93	87.05	0	0	1	1	0	0	Hold
7264.06	10	0	7210.77	638.21	0	0	0	0	0	0	KOP
8164.04	90	89.98	7775	737.86	572.93	572.93	10	8.89	10	89.98	LP
12396	90	89.98	7775	739.01	4804.89	4804.89	0	0	0	0	PBHL1H

Interpolated Points: (Relative to Slot Centre, TVD Relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100 US ft)	Northing (US ft)	Easting (US ft)	Comment
3000	0	0	3000	0	0	0	0	542465.05	592170.38	
3090	0	0	3090	0	0	0	0	542465.05	592170.38	Nudge
3100	0.1	0	3100	0.01	0	0	1	542465.06	592170.38	
3200	1.1	0	3199.99	1.06	0	0	1	542466.11	592170.38	
3300	2.1	0	3299.95	3.85	0	0	1	542468.9	592170.38	
3400	3.1	0	3399.85	8.38	0	0	1	542473.43	592170.38	
3500	4.1	0	3499.65	14.66	0	0	1	542479.71	592170.38	
3600	5.1	0	3599.33	22.68	0	0	1	542487.73	592170.38	
3700	6.1	0	3698.85	32.44	0	0	1	542497.49	592170.38	
3800	7.1	0	3798.18	43.93	0	0	1	542508.98	592170.38	
3900	8.1	0	3897.3	57.16	0	0	1	542522.21	592170.38	
4000	9.1	0	3996.18	72.11	0	0	1	542537.16	592170.38	
4090	10	0	4084.93	87.05	0	0	1	542552.1	592170.38	Hold
4100	10	0	4094.78	88.78	0	0	0	542553.83	592170.38	
4200	10	0	4193.26	106.15	0	0	0	542571.2	592170.38	
4300	10	0	4291.74	123.51	0	0	0	542588.56	592170.38	
4400	10	0	4390.22	140.88	0	0	0	542605.93	592170.38	
4500	10	0	4488.7	158.24	0	0	0	542623.29	592170.38	
4600	10	0	4587.18	175.61	0	0	0	542640.66	592170.38	
4700	10	0	4685.66	192.97	0	0	0	542658.02	592170.38	
4800	10	0	4784.14	210.34	0	0	0	542675.39	592170.38	

4900	10	0	0	4882.63	227.74	0	0	0	0	0	0	54269.75	592170.38
5000	10	0	0	4981.11	245.07	0	0	0	0	0	0	542710.12	592170.38
5100	10	0	0	5079.59	262.43	0	0	0	0	0	0	542727.48	592170.38
5200	10	0	0	5178.07	279.79	0	0	0	0	0	0	542744.84	592170.38
5300	10	0	0	5276.55	297.16	0	0	0	0	0	0	542762.21	592170.38
5400	10	0	0	5375.03	314.52	0	0	0	0	0	0	542779.57	592170.38
5500	10	0	0	5473.51	331.89	0	0	0	0	0	0	542796.94	592170.38
5600	10	0	0	5571.99	349.25	0	0	0	0	0	0	542814.31	592170.38
5700	10	0	0	5670.47	366.62	0	0	0	0	0	0	542831.67	592170.38
5800	10	0	0	5768.95	383.98	0	0	0	0	0	0	542849.03	592170.38
5900	10	0	0	5867.43	401.35	0	0	0	0	0	0	542866.4	592170.38
6000	10	0	0	5965.91	418.71	0	0	0	0	0	0	542883.76	592170.38
6100	10	0	0	6064.39	436.08	0	0	0	0	0	0	542901.13	592170.38
6200	10	0	0	6162.88	453.44	0	0	0	0	0	0	542918.49	592170.38
6300	10	0	0	6261.36	470.81	0	0	0	0	0	0	542935.86	592170.38
6400	10	0	0	6359.84	488.17	0	0	0	0	0	0	542953.22	592170.38
6500	10	0	0	6458.32	505.54	0	0	0	0	0	0	542970.59	592170.38
6600	10	0	0	6556.8	522.9	0	0	0	0	0	0	542987.95	592170.38
6700	10	0	0	6655.28	540.27	0	0	0	0	0	0	543005.32	592170.38
6800	10	0	0	6753.76	557.63	0	0	0	0	0	0	543022.68	592170.38
6900	10	0	0	6852.24	575	0	0	0	0	0	0	543040.05	592170.38
7000	10	0	0	6950.72	592.36	0	0	0	0	0	0	543057.41	592170.38
7100	10	0	0	7049.2	609.73	0	0	0	0	0	0	543074.78	592170.38
7200	10	0	0	7147.68	627.09	0	0	0	0	0	0	543092.14	592170.38
7300	10	0	0	7246.16	644.45	1.13	0	0	0	0	0	543109.5	592170.38
7400	10	0	0	7343.39	661.6	1.605	0	0	0	0	0	543126.65	592170.38
7500	10	0	0	7436.61	678.05	47.9	0	0	0	0	0	543143.11	592218.28
7600	10	0	0	7529.97	693.29	95.7	0	0	0	0	0	543158.34	592266.08
7700	10	0	0	7599.84	706.66	158	0	0	0	0	0	543171.91	592328.38
7800	10	0	0	7664.89	718.35	232.9	0	0	0	0	0	543183.4	592403.28
7900	10	0	0	7716.14	727.41	318.15	0	0	0	0	0	543192.46	592488.55
8000	10	0	0	7752.03	733.77	411.13	0	0	0	0	0	543198.82	592581.51
8100	10	0	0	7771.48	737.22	509.03	0	0	0	0	0	543202.27	59269.41
8164.03	10	0	0	7775	737.86	572.93	0	0	0	0	0	543202.91	592743.31
8200	10	0	0	7775	737.87	608.89	0	0	0	0	0	543202.92	59279.27
8300	10	0	0	7775	737.9	708.89	0	0	0	0	0	543202.95	592879.27
8400	10	0	0	7775	737.92	808.89	0	0	0	0	0	543202.97	592929.27
8500	10	0	0	7775	737.93	908.89	0	0	0	0	0	543203.1	59309.27
8600	10	0	0	7775	738.03	1008.89	0	0	0	0	0	543203.08	593179.27
8700	10	0	0	7775	738.03	1208.89	0	0	0	0	0	543203.08	593179.27
8800	10	0	0	7775	738.06	1308.89	0	0	0	0	0	543203.11	593479.27
8900	10	0	0	7775	738.07	1408.89	0	0	0	0	0	543203.14	593579.27
9000	10	0	0	7775	738.11	1508.89	0	0	0	0	0	543203.16	593679.27
9100	10	0	0	7775	738.14	1608.89	0	0	0	0	0	543203.19	59379.27
9200	10	0	0	7775	738.17	1708.89	0	0	0	0	0	543203.22	593879.27
9300	10	0	0	7775	738.21	1808.89	0	0	0	0	0	543203.25	593979.27
9400	10	0	0	7775	738.21	1808.89	0	0	0	0	0	543203.25	593979.27

9500	90	89.98	7775	738.22	1908.89	1908.89	0	543203.27	594079.27
9600	90	89.98	7775	738.25	2008.89	2008.89	0	543203.3	594179.27
9700	90	89.98	7775	738.28	2108.89	2108.89	0	543203.33	594279.27
9800	90	89.98	7775	738.3	2208.89	2208.89	0	543203.35	594379.27
9900	90	89.98	7775	738.33	2308.89	2308.89	0	543203.38	594479.27
10000	90	89.98	7775	738.36	2408.89	2408.89	0	543203.41	594579.27
10100	90	89.98	7775	738.39	2508.89	2508.89	0	543203.44	594679.27
10200	90	89.98	7775	738.41	2608.89	2608.89	0	543203.46	594779.27
10300	90	89.98	7775	738.44	2708.89	2708.89	0	543203.49	594879.27
10400	90	89.98	7775	738.47	2808.89	2808.89	0	543203.52	594979.27
10500	90	89.98	7775	738.49	2908.89	2908.89	0	543203.54	595079.27
10600	90	89.98	7775	738.52	3008.89	3008.89	0	543203.57	595179.27
10700	90	89.98	7775	738.55	3108.89	3108.89	0	543203.6	595279.27
10800	90	89.98	7775	738.58	3208.89	3208.89	0	543203.63	595379.27
10900	90	89.98	7775	738.6	3308.89	3308.89	0	543203.65	595479.27
11000	90	89.98	7775	738.63	3408.89	3408.89	0	543203.68	595579.27
11100	90	89.98	7775	738.66	3508.89	3508.89	0	543203.71	595679.27
11200	90	89.98	7775	738.68	3608.89	3608.89	0	543203.73	595779.27
11300	90	89.98	7775	738.71	3708.89	3708.89	0	543203.76	595879.27
11400	90	89.98	7775	738.74	3808.89	3808.89	0	543203.79	595979.27
11500	90	89.98	7775	738.77	3908.89	3908.89	0	543203.82	596079.27
11600	90	89.98	7775	738.79	4008.89	4008.89	0	543203.84	596179.27
11700	90	89.98	7775	738.82	4108.89	4108.89	0	543203.87	596279.27
11800	90	89.98	7775	738.85	4208.89	4208.89	0	543203.9	596379.27
11900	90	89.98	7775	738.88	4308.89	4308.89	0	543203.93	596479.27
12000	90	89.98	7775	738.9	4408.89	4408.89	0	543203.95	596579.27
12100	90	89.98	7775	738.93	4508.89	4508.89	0	543203.98	596679.27
12200	90	89.98	7775	738.96	4608.89	4608.89	0	543204.01	596779.27
12300	90	89.98	7775	738.98	4708.89	4708.89	0	543204.03	596879.27
12395.99	90	89.98	7775	739.01	4804.89	4804.89	0	543204.06	596975.27

PBHL-1H

Formation Points: (Relative to Slot Centre, TVD Relative to Kelly Bushing)

MD	Inc	Az	TVD	N Offset	E Offset	Northing	Eastng	Name	Comment
(US ft)	(°)	(°)	(US ft)	(US ft)	(US ft)	(US ft)	(US ft)		